A STUDY OF BURNOUT AND INTRINSIC NEEDS FULFILLMENT AMONG PROJECT MANAGERS

by

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Abstract

The pace of change is accelerating, affecting every aspect of organizational life. From overlapping waves of communications and social networking technologies to shifting economic landscapes, the difference between yesterday and today is relentlessly increasing for business. The pace of change is felt and accelerated by organizations of every kind as they strive to create, maintain, or augment their place in dynamic global marketplaces. One professional group, project managers, is especially associated with change. Projects are undertaken to facilitate change, and it is a perpetual factor within the project team itself as it transitions from one project phase to the next, adapting to unknowns. If organizations must adapt or perish, and projects are a main vehicle for delivering adaptive change, then the performance news from the project management arena is cause for concern: project success rates continue to be mired at low levels. Project managers are a key element of project success, and their engagement, motivation, and performance are important considerations for firms. They may, however, routinely encounter conditions previous research has associated with debilitating burnout. The research included a quantitative survey field study to explore whether project managers experience burnout and studied the relationship between burnout and satisfaction of the intrinsic motivational needs described by self-determination theory. The findings indicated that the sample experienced moderate burnout, with a significant portion reporting high levels of exhaustion. Significant correlations were found between overall burnout and needs fulfillment, as well as between individual burnout dimensions and the three self-determination theory needs. The research analysis includes recommendations to reduce burnout and support intrinsic needs fulfillment for project managers.

Dedication

This is dedicated to the esteemed teachers in my home town, Hudsonville, Michigan, who influenced me: Beatrice Shields, Chris Sikkemma, Julie Sweers, Larry Byle, Dave Bolhuis, and many others. Going to school was not always wonderful, but being taught by you was. Go Eagles!

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CHAPTER 1. INTRODUCTION

Introduction to the Problem

Many of us begin our working lives with high hopes and good intentions. We work to enact our values, express our talents, and to gain the resources needed to survive and grow. Disablement and harm resulting from overly stressful work is antithetical to these goals, yet such ill effects do occur. The observation of the burnout syndrome resulting from chronic stress originated with those who worked to the point of emotional exhaustion and physical depletion, a condition of personal crisis (Freudenberger, 1974; Maslach, 1976). Although it has been studied for more than thirty years in a multitude of work settings and occupations around the globe, research on burnout and its antipode, engagement, is far from complete. By its very nature as a condition of ill-being and affliction it remains an occurrence of concern. While burnout is a hazard worthy of attention, work also has the potential to support and elevate employees' capabilities and well being.

While burnout entails the depletion of energy and diminishment of well being, the opposite potentials of vitality and fulfillment are also achievable in the workplace. Many workers find their jobs and professions to be life-enriching activities that provide a sense of genuine fulfillment. While work environments are as diverse and variable as the people occupying them, research has shown that some personal characteristics and work environments are consistently related to employee well-being (Vansteenkiste, et al., 2007). The satisfaction comes from fulfillment of deep values and interests with which workers identify. A psychological construct with application in the workplace, self-determination theory, describes intrinsic motivation and the potential for fulfillment of

fundamental needs in the workplace. While workers' needs may be thwarted and they can develop maladaptive behaviors, self-determination theory emphasizes their ability to be fully functional and healthy. Both burnout and self-determination theory have been investigated through many research studies.

Of the two psychological constructs, burnout and self-determination theory, the burnout syndrome has been more systemically studied among specific work disciplines. The recognition of burnout and harmful stress among professional groups and occupations is important because the resulting ill effects influence organizational as well as individual outcomes. Research into stress levels and the incidence of burnout has included nurses, teachers, police, and other professions thought to work in dynamic, stressful environments (Maslach, Jackson, & Leiter, 1996). The research has included blue and white-collar employees in multiple business sectors and nations, but one significant category of managerial workers has not been assessed: project managers.

Projects, and the project managers who oversee their planning and execution, are an essential component of today's organizational structures and processes. Project management has risen to a place of eminence for accomplishing many firms' goals, and the persons most responsible for project success are project managers. The discipline of project management, with roots in the department of defense and large construction industry in the late 1950's and early 1960's, has grown to the point of ubiquity. While this dynamic, flexible management approach has gained great recognition and been codified with many practitioner standards the psychological experiences of its practitioners have remained mostly unexamined. This study explored whether a sample of project managers experienced burnout stress and assessed the relationship between

burnout and satisfaction of the intrinsic motivational needs described by self-determination theory.

Background of the Study

The pace of change is accelerating, affecting every aspect of organizational life. From Moore's law (G. E. Moore, 1965), which continues to successfully predict the exponential growth of computing power, to successive waves of communications and social networking technologies, to the accelerating pace of global environmental change, the difference between yesterday and today is relentlessly increasing. The pace of change is felt and accelerated by organizations of every kind as they strive to create, maintain, or augment their roles in shifting global marketplaces. For modern humans, whose physiology and social orientations evolved over of tens of thousands of years (Lawrence & Norhria, 2002) the increased tempo of global change represents an unprecedented challenge.

One professional group, project managers, has an especially strong relationship with change. Project management is the business of delivering change (Turner & Müller, 2003) and project teams are themselves identified as changeable temporary organizations that form, operate, and dissolve more rapidly than their host organizations (Söderlund, 2004). Change is a constant within the project team itself as it transitions from one phase of execution to the next and responds to unknowns. If organizations must adapt or perish, and projects are a primary vehicle for delivering adaptive change, then project performance is a fitting topic of interest to academia and business. Project management's increasing significance is demonstrated by the growth in its literature, expanding from

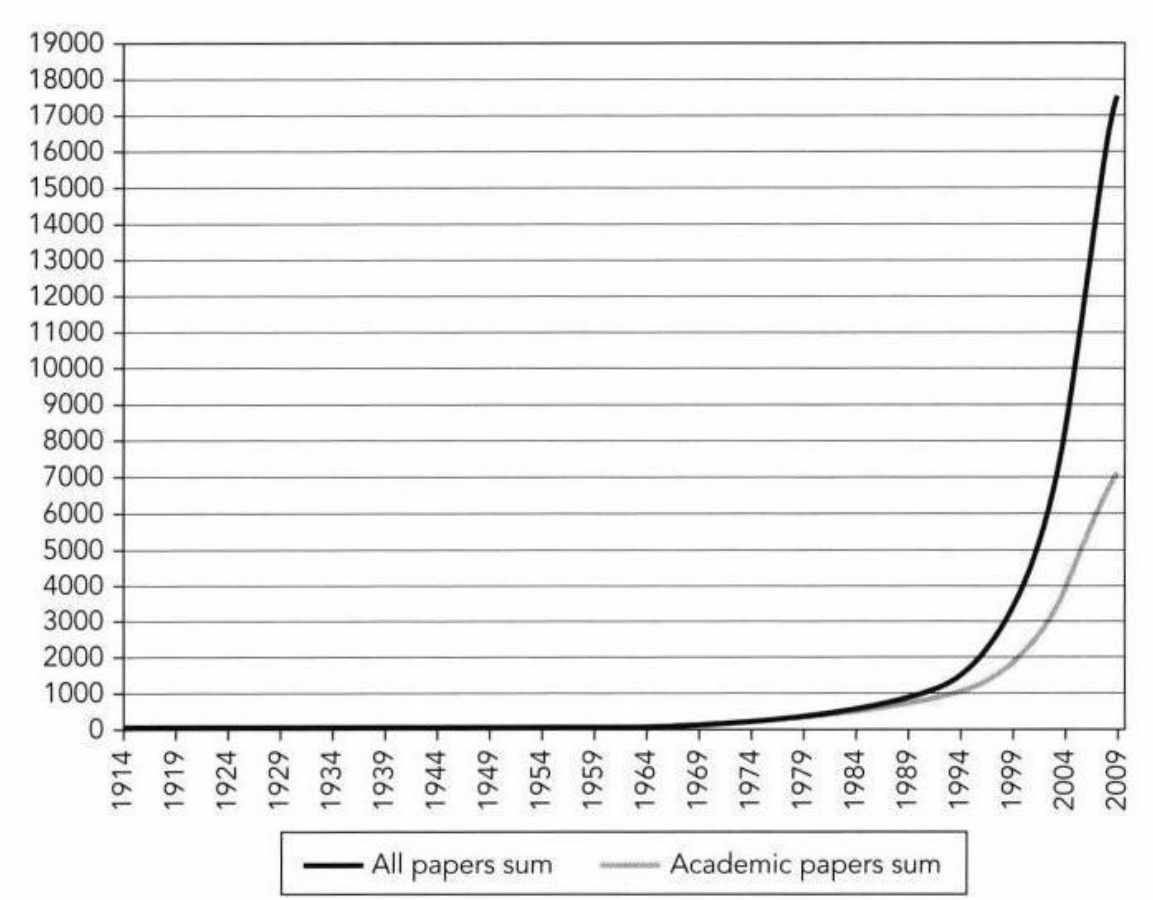

Figure 1. Summative distribution of project management documents per year. From "Mapping the Dynamics of the Project Management Field: Project Management in Action (Part 4)" by C. N. Bredillet, 2009, *Project Management Journal, 40*(4), 4.

1043 peer-reviewed articles in 1988 to 7,076 in 2009 (Figure 1). While professional interest and research directed towards project management has grown, news from the profession's monitors about project success rates gives cause for concern.

Reports from the field about project management suggest that this is both the best and the most challenging of times. Project management continues to gain recognition as a legitimate and valuable form of organizational structure and process. The membership rolls of organizations offering professional project management certification are exploding (Frenette & Dochtermann, 2009), indicating increased professional competence and awareness among the rank-and-file. Many organizations have become "projectized," with structures and processes that are centered on projects, programs and portfolios (Williams, 2005, p. 497). Yet, project success rates continue to be mired at low levels. The project management literature, seemingly as long as success levels have been monitored, has consistently reported high rates of cost, schedule, and performance failure (Gelbard & Carmeli, 2009; Morris, 2005). The challenges to project success are thought to be growing rather than receding (Cicmil & Hodgson, 2006), an observation supported by current reports of project management success rates. A recent assessment from the Standish Group, a venerable monitor of project management performance, reports that less than one-third of information technology projects finish successfully, a ten year low point ("Rescue Plan," 2009). The Government Accountability Office (2008), assessing the management of major weapons acquisition programs, reported a $295 billion cost increase in 2007, up from $42 billion in 2000, and an increase in delayed deliveries from 16 to 21 months over the same time period. In a time of

increased competition, constrained government budgets, and more scarce and costly resources, reports such as these are unwelcome.

The lackluster record of project performance highlights the need for continued research on project management. While the profession has developed increasingly comprehensive practitioner guides and bodies of knowledge, outstanding success rates continue to elude project managers. Research, therefore, into conditions promoting increased project management effectiveness continues to be important (Gelbard & Carmeli, 2009). The project management discipline also benefits from research beyond the most common topics of tools, methods, and practices.

Questions about the theory and nature of project management are growing alongside recognition of the record of weak performance. It has been noted that the project management literature commonly approaches the discipline from a deterministic worldview and predominantly focuses on prescriptive tools and methods (Winter, Smith, Morris, & Cicmil, 2006). From such a perspective, projects fail largely due to a lack of planning and control (Cicmil, Williams, Thomas, & Hodgson 2006; Williams, 2005) rather than differences in work environments. The project management discipline can benefit from a broadening of its normal, "hard" technical areas of consideration to include "soft", non-technical topics such as motivation, leadership, and culture (Muzio, Fisher, Thomas, & Peters, 2007; Pant & Baroudi, 2008). One reason for such studies is to determine what distinguishes project management from other professions. Another is to broaden the discipline's understanding how to achieve success. Research concerning the project management work environment, and its effect on project manager vitality and motivation, is an area that addresses both criteria. Another perspective for assessing the

nature of project management is to consider the varying needs of stakeholders who usually have an interest in project completion.

Organizations have obligations to a diverse set of stakeholders, each with a set of needs and requirements. Customers require quality services and products, and owners expect returns consistent with their investments. Employees, too, are an important stakeholder group, with expectations that organizations, if not centered on their workers' welfare, will at least do no harm. However, work environments are viewed as increasingly stressful due to increased pace, frayed social contracts, and separation of workers from their outputs (Maslach & Leiter, 1997). Disappointment and disillusionment in the work they undertake is another source of stress for workers. Among the other outcomes of project failure, one might question the psychological consequences for project managers of often being involved with failed or challenged project efforts, a situation in which they usually play an important role.

The successful completion of projects depends largely upon the performance of project managers. Projects are activities undertaken to produce a unique outcome constrained by time, cost, and performance limitations (Pant & Baroudi, 2008; Reynolds & Yetton, 2007), and the conditions under which project managers perform are often very strenuous (Djebarri, 1996). The project environment always includes a level of uncertainty concerning planning and execution. Added to the native uncertainty is pressure to provide outputs that meet stakeholder requirements on time and within budget, goals that often change during the project lifecycle. Project management is a predominantly team-based activity, and the project manager is usually assigned explicit responsibility for leadership of the project team (Kendra & Taplin, 2004; M. R. Lee,

2009). Altogether the uncertainty, pressure, rapid change, and leadership responsibilities that are common features of the project environment may result in high levels of distress for project managers. In addition to the challenges of the project environment itself, the project manager may be strained by additional factors such as career path considerations, relationships with other managers, and ambiguity about the role of the project manager in the organization's strategy formulation process (Huemann, Keegan, & Turner, 2007; Ng, Skitmore, & Leung, 2005; Tampoe & Thurloway, 1993). All of these conditions may combine to produce negative stress and burnout in project managers. However, little research has been done on stress experienced in the project management environment in general, and none on burnout in particular.

The burnout syndrome of distress and emotional exhaustion has been well-established through the model pioneered by Christina Maslach and her associates (Maslach & Florian, 1988; Maslach & Jackson, 1981). The detection and diagnosis of burnout was initially associated with people-helping professions such as psychiatry, nursing, and social work. The syndrome identified by Maslach (1976; 1978) posited that persons in the people-helping professions became emotionally fatigued and drained as a result of exposure to overwhelming work conditions centered on contact with needful others. Burnout's occurrence is thought to be expanding (Maslach & Leiter, 1997), and the count of professions and disciplines that can experience burnout has grown to include many high-pressure work disciplines, including management (Cordes & Dougherty, 1993). Burnout is defined by its symptoms, and in both person-centered and more general work environments it is thought to be manifest through three dimensions. In more general work environments burnout presents itself through exhaustion, cynicism,

and inefficiency (Maslach, Jackson, & Leiter, 1996). Simply listing the symptoms of burnout does not do true justice to its effects. Beyond impacts to organizational performance, burnout exacts a heavy toll on the sufferer's mental and physical health, becoming a crisis for those experiencing it (Bres, Salanova, & Schaufeli, 2007; Freudenberger, 1980; Maslach, 1976). Healthy, engaged managers are a prime resource to organizations, and burnout, a condition of ill health and disengagement, is the antithesis of what is desired for them in the workplace. In many respects, the deleterious effects of burnout contrast with the potential for needs fulfillment and human functionality described by self-determination theory

Self-determination theory identifies intrinsic human needs, including autonomy, competence, and relatedness, that form a basis for health and growth when satisfied (Ryan & Deci, 2002). An overarching manifestation of fulfillment of these intrinsic needs is full functionality (Deci & Ryan, 2000), a potentiality that contrasts sharply to the symptoms of burnout. People, in conformance with their past experiences and individual differences, manifest an intrinsic motivation to act in accordance their own volition (autonomy), achieve skillful mastery of their pursuits (competency) and seek community with others (relatedness). The environmental thwarting of these needs may result in the antithesis of the normal human drive towards growth and integration, a condition termed amotivation (Deci & Ryan, 2000), and a belief that one cannot act independently, is ineffective, and is isolated from caring others (Gagne & Deci, 2005).

The lack of information about burnout-stress levels of project managers formed one backdrop for this research. Another was burnout's depletion of personal resources and ineffectiveness compared with the potential for vitality and competence described by

self-determination theory. This research included an assessment of project manager burnout levels and an examination of the relationship between their reported levels of burnout and the work environment's fulfillment of intrinsic needs as described by self-determination theory.

Problem/Opportunity Statement

Project failure rates are high, and a need exists to explore beyond the deterministic perspective of project management to assess conditions that may contribute to project failure. An expanded perspective includes consideration of "soft" areas such as the engagement and motivation of project team members, primarily including project managers. Project managers may experience significant distress, a condition associated with burnout in other professions. The effectiveness of project managers is a vital component for project success, and burnout could have a significant effect on their performance

The assessment of project manager burnout, however, is a neglected study area. The relationship between project managers' experience of burnout and the satisfaction of intrinsic needs in the work environment is also not known. The capability of the environment to address the human needs identified by self-development theory may be related to project manager burnout, and hence to project manager effectiveness. Research assessing burnout levels and the relationship of project managers' perceived levels of burnout and intrinsic needs fulfillment would be beneficial to individuals, the project management profession, and organizations.

Purpose Statement

The purpose of this research was to explore and describe the project management work environment and gain insight into the project manager population associated with a selected organization. The researcher conducted a quantitative survey field study to determine whether project managers experience burnout and, if burnout was present, to explore the relationship between burnout and the satisfaction of intrinsic motivational needs identified by self-determination theory, along with an assessment of the moderating affect of demographic factors. The research assessed burnout and intrinsic needs satisfaction levels using established survey instruments on a sample from a project management-focused firm, and also assessed correlations between the three burnout dimensions and the three intrinsic needs identified by self-determination theory. The correlation of demographic factors with overall burnout and needs fulfillment was also analyzed.

Management / Research Questions for the Study

The organizational research process links real-world concerns with the specific questions a study undertakes to answer. The model described by Cooper and Schindler (2008) starts with general problems or areas of concern to an organization's managers, and proceeds to questions of increasing specificity. In the process, the research effort becomes more focused and manageable. The context for the following management questions was the relationship between the work environment and project manager burnout.

Management questions

Is the project management work environment one of high stress and potential employee burnout?

Are there environmental factors that affect perceived stress and burnout?

Do demographic factors affect burnout?

Research Questions

The research questions for this study were determined to be as follows:

Research Question 1: Do project managers experience significant levels of burnout?

Research Question 2: Is the work environment's fulfillment of intrinsic needs related to burnout levels among project managers?

Research Question 3: Are the self-determination theory sub-factors (autonomy, relatedness, and competency) related to the dimensions of burnout (exhaustion, cynicism, and inefficacy) in the work environment?

Research Question 4: Are demographic factors related to burnout levels at work?

Research Question 5: Are demographic factors related to intrinsic need satisfaction?

Research Question 6: Do demographic factors moderate the relationship between burnout and intrinsic needs satisfaction?

Hypotheses for the Study

H10: Project managers will report no burnout in the workplace.

H1a: Project managers will report burnout in the workplace.

H20: Project managers' overall intrinsic needs fulfillment and burnout scores will exhibit no significant correlation.

H2a: Project managers' overall intrinsic needs fulfillment and burnout scores will exhibit a significant negative correlation.

H30: Project managers' sub-scores on the self-determination theory dimension of autonomy will exhibit no correlation with the burnout syndrome dimension of exhaustion.

H3a: Project managers' sub-scores on the self-determination theory dimension of autonomy will be negatively related to the burnout syndrome dimension of exhaustion.

H40: Project managers' sub-scores on the self-determination theory dimension of relatedness will exhibit no correlation with the burnout syndrome dimension of cynicism.

H4a: Project managers' sub-scores on the self-determination theory dimension of relatedness will be negatively related to the burnout dimension of cynicism.

H50: Project managers' sub-scores on the self-determination theory dimension of competency will exhibit no correlation with the burnout syndrome dimension of reduced effectiveness.

H5a: Project managers' sub-scores on the self-determination theory dimension of competency will be negatively related to the burnout syndrome dimension of reduced effectiveness.

H60: Project manager demographic factors such as gender, race, age, marital status, education, and experience will have relationship to the levels of burnout in the workplace.

H6a: Project manager demographic factors such as gender, race, age, marital status, education, and experience are related to the levels of burnout in the workplace.

H70: Project manager demographic factors such as gender, race, age, marital status, education, and experience will have no relationship to the levels of intrinsic needs satisfaction in the workplace.

H7a: Project manager demographic factors such as gender, race, age, marital status, education, and experience are related to the levels of intrinsic needs satisfaction in the workplace.

H80: Project manager demographic factors such as gender, race, age, marital status, education, and experience will not moderate the relationship between the overall level of burnout and intrinsic needs satisfaction.

H8a: Project manager demographic factors, such as gender, race, age, marital status, education, and experience will moderate (change the strength or direction of) the relationship between the overall level of burnout and intrinsic needs satisfaction.

Nature of the Study

The research was a correlational study of descriptive design (Swanson & Holton, 2005). The descriptive design aspect included gathering burnout, intrinsic motivation, and demographic information from a sample. The correlational element consisted of an assessment of workplace stress and intrinsic needs fulfillment. The research methodology included a quantitative approach using a one-shot, cross-sectional survey with close-ended questions. The research involved administering the Maslach Burnout Inventory – General Survey and the Basic Needs Satisfaction at Work instruments to a sample of project managers. The Maslach Burnout Inventory – General Survey was

selected from the three available Maslach Burnout Inventory instruments because the project management work environment matched the non-person-centric circumstances that are most appropriate for that instrument. The Basic Needs Satisfaction at Work instrument is also suitable for general work conditions, including those of project managers. The stress levels recorded from the sample were compared to standard scores recorded for other populations to provide an assessment of project management burnout levels. The scores from both instruments were compared to provide an assessment of the relationship between perceived stress and the level of intrinsic motivation and needs satisfaction. Moderating factors such as race, ethnicity, age, education level, gender, marital status, and experience were also analyzed to determine their association with reported levels of burnout and intrinsic need fulfillment.

Significance of the Study

The information resulting from this research could be important to several groups including human resource managers, organizational leaders, and the project management community. Organizational human resource departments often have an interest in determining work environment's effect on employees, especially those in key positions. Because burnout exacts such a high toll from both the affected individuals and their organizations, information about its rates of occurrence and strength is important. The research explored burnout levels in an essential category of employees, project managers. Because successful projects enhance the firm's ability to achieve its goals, organizational leaders have an interest in reducing factors that can lead to project failure, and burned-out project managers may be one such factor. The project management community is another group with reason to be interested in this research.

The project management community has an interest in research that goes beyond the bounds of practitioner methods, tool sets, and techniques. While prescriptions for project success have continued to be codified in project management bodies of knowledge, and the membership of professional project management organizations continues to swell, project success rates remain a problem. The doctrinaire approach to project management, included in bodies of knowledge, course texts, and the literature, features a well-established lifecycle model and prescriptions for effective management. However, the treatment of project management as a clockwork that can be made to run properly through fine-tuning is reaching the ends of its intellectual growth. Authors in the most prestigious project management journals, such as the International Journal of Project Management, have called for exploration of project management success factors beyond the best-practice mindset of tools and methods. An assessment of the work environment's effect on project manager stress and intrinsic motivation is such an appropriate and needed area of research.

Definition of Terms

Autonomy. Behavior experienced as willingly enacted and fully endorsed by the performing person (Chirkov, Ryan, Kim, & Kaplan, 2003). The opposites of autonomy are controlled behavior and amotivation.

Amotivation. In self-determination theory, amotivated behavior lacks self-determination; the doer has no intentions for the behavior and does not really know why it is being done (Gagne & Deci, 2005). It is associated with unwillingness (Ryan & Deci, 2000) and a lack of intention to act. Amotivation results from not valuing an activity

(Ryan, 1995), not feeling competent to do it, or not expecting it to yield a desired outcome (Ryan & Deci, 2000).

Burnout. Burnout is a response syndrome of exhaustion, depersonalization (or cynicism) and reduced personal accomplishment/efficacy (Cordes & Dougherty, 1993, p. 622).

Competency. In self-determination theory, competency is the demonstration and feeling of effectiveness and/or mastery in the physical and social worlds (Deci & Ryan, 2000) and succeeding at tasks (Deci, et al., 2001). Answering this need leads people to seek challenging circumstances (Ryan & Deci, 2002).

Cynicism. A burnout dimension, cynicism is a distant and/or indifferent attitude toward work in general (Schaufeli & Bakker, 2004, p. 294), cynicism is related to alienation and disengagement from the job role (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), and is the opposite of involvement (Schaufeli & Bakker, 2004).

Depersonalization. Depersonalization is marked by the treatment of clients and co-workers as objects rather than people, a display of detachment, and emotional callousness (Cordes & Dougherty, 1993, p. 623). In non-service work settings the analog of depersonalization is alienation or cynicism.

Emotional Exhaustion. Feelings of being overextended and exhausted by the emotional demands of one's work (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001, p. 499), a lack of energy, and feeling that one's emotional resources are used up (Cordes & Dougherty, 1993, p. 623).

Engagement. Job engagement is assumed to be the positive antipode of burnout (Schaufeli & Bakker, 2004). Or, as Maslach and Leiter (1997, p. 34) put it: "Energy, involvement, and efficacy."

Inefficacy. Low levels of job competence and achievement (Cordes & Dougherty, 1993, p. 624) associated with the diminished personal accomplishment attribute of burnout.

Introjection. In self-determination theory, introjection refers to the internalization of a control that is not fully integrated or accepted by the holding person. Guilt, ego involvement, and coercion are common motivators for introjected control. (Deci, Eghrari, Patrick, & Leone, 1994; Deci & Ryan, 2008).

Involvement (work). Involvement is the degree to which work is a central concern in an employee's life and a core part of their identity (Lorence & Mortimer, 1981, p. 298).

Organismic. In self-determination theory, the organismic perspective of growth and development contrasts with the mechanistic or reductionist view of motivation and behavior (Baucum, 2008).

Project. A project is a temporary effort undertaken to achieve a unique result to satisfy business requirements or external influences (Project Management Institute, 2008). Projects contrast with continuous or batch business efforts.

Project Manager. The person assigned to achieve project objectives by the controlling organization (Project Management Institute, 2008).

Relatedness. Relatedness is a sense of mutual respect, caring, and connection with others (Deci, et al., 2001; Deci & Ryan, 2000).

Assumptions and Limitations

Assumptions

It was assumed that the privacy strategy for the research, primarily including anonymous access to the survey Web site, would allay participant concerns about potential harm to or embarrassment of respondents. It was also assumed that potential respondents would have access to the internet and would be easily capable of completing an online survey. The survey instruments, while demonstrating validity in similar contexts, had not been assessed with project managers and were assumed to be valid.

It was assumed that a sufficient number or respondents would elect to participate in the survey. The rationale for this assumption was that potential respondents would find some appeal in being asked their opinions about work and also in being asked to participate in research specifically related to the project management discipline. Another assumption was that the survey respondents were full-time project managers with current experience. While recognizing the communication challenges inherent in self-administered survey research, it was assumed that survey respondents would accurately report their status and perceptions, allowing meaningful assessment of results. It was assumed that respondents would complete the distributed survey by themselves, according to the provided instructions.

Limitations

The research was descriptive and correlational in nature and did not establish a cause-and-effect relationship between intrinsic needs fulfillment and burnout. The research also did not explore specific workplace conditions, such as overload or role stress, which might cause distress. The one-shot nature of the survey meant it could not

take into account particular circumstances within organizations or in the macro-level environment. Also, the influence of some intervening and confounding variables, such as individual dispositions or national economic conditions, that could affect burnout levels and intrinsic needs fulfillment were beyond the scope of the research.

The data collection sample was limited to those persons with access to the Internet and who are associated with the firm participating in the research. The research results, therefore, may not be generalizable to the broader project management population. The study was also limited to those who voluntarily participated, presenting the possibility of self-selection bias. The number of participants in the study overall was ultimately limited by time and budget constraints.

Organization of the Remainder of the Study

The research explored the level of burnout experienced by project managers, and assessed the correlation of burnout with fulfillment of intrinsic needs in the workplace. The research data was taken from a sample of project managers who are associates of the participating organization and who elected to participate in an online survey.

This research manuscript is organized into five chapters. Chapter 1 includes the background to the study, a statement of the problem, the study's purpose, research questions and hypotheses, definition of terms, and assumptions and limitations. Chapter 2 presents a review of the literature, focusing on three major areas: burnout, project management stress, and self-determination theory. Chapter 2's purpose was to build a rationale for the research by showing a connection between burnout, the project management work environment, and self-determination theory. Chapter 3 provides a description of the study, including its design, the target population and sample, the survey

instruments, variables, procedures, data analysis techniques, and ethical considerations. Chapter 4 includes descriptive and inferential analysis of the survey data, and Chapter 5 describes the acceptance or rejection of each hypothesis based on the data analysis, discussion of results, implications for management, recommendations for future study, and concluding observations.

CHAPTER 2. REVIEW OF THE LITERATRE

"There is nothing so practical as a good theory." (Kurt Lewin, 1951)

"In theory, theory and practice are the same. In practice, they are not."

(Jan L. A. van de Snepscheut, unattributed)

Introduction and Orientation

The purpose of this literature review is to describe the research's context by conveying the significance and interrelations of three topic areas: burnout, self-determination theory, and project manager stress. Several of the research hypotheses concern the relationships between the dimensions comprising burnout and the needs identified by self-determination theory. This chapter describes those dimensions and needs. This literature review also addresses a central purpose of the research, determining whether burnout is experienced by project managers, by identifying the sources of burnout and stress identified in the burnout literature and then comparing those stressors what information the literature provides about the project management work environment. Outcomes and effects from burnout, important for understanding the need for the research, are also identified. The ties between the theoretical explanations for burnout model and the intrinsic motivations defined by self-determination theory, and research linking model and theory, are also noted. In order to establish a context for understanding the hypotheses, the history and dimensions of burnout and self-determination theory are assessed, and relationships between them reported. As a starting point, the significance of burnout research to organizations and individuals, a main reason for the research, is reviewed.

Importance of Burnout Research

The case for the assessing the seriousness of any risk is built upon two considerations: probability of occurrence and severity of impact (Kerzner, 2006; Project Management Institute, 2008). Applying this logic to the topic of burnout, one can first consider whether the burnout syndrome is widespread. While the study of burnout has its roots in the "helping" human services professions (Dolan, 1987; Maslach, 1976), its occurrence has been more recently documented to apply to other professional fields and work settings (Bakker, Demerouti & Schaufeli, 2002; Kalimo, Pahkin, Mutanen, & Toppinen-Tanner, 2003). The literature indicates that there is virtually no type of work or level of employment within organizations that is exempt from the burnout syndrome (Schaufeli & Greenglass, 2001). The circumstances that were initially identified as contributing to burnout in service professions, such as nursing and social work, have been found to be generalizable across the whole working population. A 2003 Gallup pole of 1,000 adults found that 17% were actively disengaged from work, a burnout symptom, and another 54% were not engaged (Catteeuw, Flynn, & Vonderhorst, 2007). In one national-level survey, Lindblom, Linton, Fedeli and Bryngelsson (2006), found almost a fifth of Swedish workers could be categorized as experiencing high stress using a relatively conservative categorization scale. Researchers in the field of burnout have found the syndrome to be more widespread than is usually perceived (Cordes & Dougherty, 1993), characterized the situation as "pretty bad," and observed that even their dour findings about the occurrence of burnout may be optimistic (Golembiewski, Boudreau, Ben-Chu, & Hauping, 1998, p. 4). Burnout is international in scope (Maslach & Leiter, 2008) and affects both private and public sector workers (Golembiewski,

Boudreau, Ben-Chu, & Hauping, 1998). Trends in the workplace support the observation that the occurrence of detrimental stress and burnout are increasing.

Unrelenting change and higher workloads are two distress-inducing conditions on the rise in organizations. Change in the environment is stressful for individuals, often representing a threat to their security and arousing a fear of the unknown. Adapting to change also always requires an additional expenditure of limited personal energy, potentially draining workers. Organizational change also concerns new processes and work structures, and because the pace of organizational change is increasing, so is the potential for burnout (Leiter & Maslach, 2001). Change in the business environment, including adaptation to new technologies (Bandura, 2001), downsizing, and reorganizations (Posig & Kickul, 2003; Schaufeli & Greenglass, 2001) are factors contributing to burnout. Beyond change, the sheer quantity of work expected of managers is an issue. The workload of managers is high, with mid and upper level managers routinely expected to work 49 – 54 hours per week (Posig & Kickul, 2003). As global competition intensifies, and expectations on managers and knowledge workers increase, the potential for burnout is rising as well. Research and observation indicates that burnout is contagious, meaning that isolated cases can spread spontaneously in organizations (Bakker, Westman, & Schaufeli, 2007; Yip, Rowlinson, & Oi Ling, 2008). The literature-supported case for the concern about the widespread occurrence of burnout is solid, leading to consideration of the second risk component, severity of impact.

The literature makes a compelling case for the high cost of burnout to both organizations and individuals. Motivated, energized people are a firm's most important resource (Bassi & McMurrer, 2007), the essential component for successful adaptation,

innovation and change. Organizations require the best performance from their employees (Leiter & Maslach, 2001), and need dedication and leadership from the most talented employees to lead change and innovation (Catmull, 2008; Webber, 2007). Advances in transportation and information transfer technologies, as well as rising skill levels in developing countries, means that intense global competition continues to become more commonplace. In such circumstances businesses need the highest quality outputs from their best workers to remain competitive. These are just the people most prone to burnout. Research has identified the most dedicated, goal oriented employees as those most at-risk for burning out in the workplace (Chauhan, 2009; Posig & Kickul, 2003). Helliwell (1981) described the attitudes and circumstances that lead to burnout. It affects the most motivated people, those who want to be recognized for their success and who accept greater responsibility as a reward. The accumulating workload they accrue eventually overwhelms their energy reserves resulting in exhaustion. The scope of research and recognized implications of burnout has grown steadily and become generalized since the syndrome's identification in the mid-1970s. The first observations and documentation of burnout were made, however, in a much more specific setting.

Orientation to Burnout

Burnout Theory's Historical Development

The impetus for some research comes from a basis in theory, with scientists seeking information to confirm or refute a conceptual construct. The drive to research can also move in the opposite direction, from a series of careful observations of real-world problems leading to theory or model development. The history of burnout research is a case study of the second type of knowledge development, beginning with observation

of a phenomenon, the gathering of information about it, and its progression into theory and model development (Maslach, Schaufeli, & Leiter, 2001; Maslach, 2003). Herbert Freudenberger is credited with applying the term "burnout" to the stress syndrome in 1974 (Burke & Greenglass, 1995; Freudenberger, 1974; Jackson, Schwab, & Schuler, 1986). His observations were initially made in a free-clinic human services environment during the 1960's, where he noted the results of continuous demands on care givers, including himself (Freudenberger, 1980). In the initial burnout article, Freudenberg (1974) chronicled the general circumstances leading to burnout and its symptoms among professional staff, chiefly including overwork and emotional strain. Christina Maslach's early research (1976, 1978) was also focused on the "helping" professions, using interviews and observation to help identify the characteristics of burnout (Cordes & Dougherty, 1993). Both Maslach and Freudenberger identified important burnout characteristics, including exhaustion, distancing from others, and a drop in effectiveness, that became the dimensions of the most widely accepted burnout model. The innovation from Maslach was the firm establishment of a construct of burnout including those core dimensions. Through the 1970s and early 1980s the burnout concept became more clearly defined, including its codification in the Maslach Burnout Inventory in 1981 (Cordes & Dougherty, 1993). The introduction of a reliable survey instrument enabled the assessment of burnout in a variety of organizational and national settings in the years that followed (Angerer, 2003). Burnout research and writing was popularized and it became the "syndrome of the 1980's" (Dolan, 1987, p. 3).

As the burnout syndrome gained wider acceptance on the basis of empirical evidence, the focus of research moved on to additional model and theory development.

Determinations of the dimensions of burnout, the progression of the events in the burnout syndrome, and the relationship of burnout to theories of stress and strain were all areas of important research and debate (Cordes & Dougherty, 1993). The growth and refinement of burnout models, along with the generalization of the syndrome to numerous work settings, supported the development of additional survey instruments, such as the Maslach Burnout Inventory – General Survey (Bakker, Demerouti, & Schaufeli, 2002) and the Oldenburg Burnout Inventory (Demerouti, Bakker, Nachreiner, & Schaufeli, 2000). More recently, the interaction of personal and of organizational factors causing burnout (Halbesleben & Buckley, 2004; Maslach, Schaufeli, & Leiter, 2001), and research into the operational antipode of burnout, engagement, have been areas of emphasis (Kanwar, Singh, & Kodwani, 2009). The conceptual development of the burnout model was an early concern, and an understanding of the burnout construct, including the model's component dimensions, is important for relating it to the potential for project manager burnout.

Burnout Construct and Dimensions

The study of burnout is closely interconnected with analysis of harmful stress in the workplace. The terminology of stress studies, pioneered by Hans Selye (Goldstein & Kopin, 2007; Rosch, n.d.), is challenging in itself. In physics and engineering, stress refers to the force acting on an object while strain is the resulting deformation. Applied to psychology, one would note that persons are subject to stress and experience strain. However, the word "stress" is widely used to refer to either stress or strain. For instance, the American Institute of Stress identifies stress as a subjective feeling of tension

associated with various symptoms (*Job Stress,* 2010), and Greenglass, Burke and Ondrack (1990, p. 11) noted:

> Use of the term "stress" is highly variable in the field. For example "stress" may be used to refer to a stimulus, as when environmental conditions are seen as stressors. But stress may also be seen as a response, as well as a complex relational term linking environmental characteristics (i.e. occupation demands) and personal characteristics (i.e. the Type A personality).

Moreover, stress is not necessarily harmful. The pleasurable tension associated with positively challenging events, such as promotions or athletic competitions, is termed eustress. Negative stressors which result in unpleasant sensations and ill effects are termed distress. The stress referred to in this document, unless otherwise noted, is of the harmful, distressing variety.

The emphasis in the definition of burnout has changed somewhat over the thirty-year history during which the syndrome has been systematically researched. An early definition identifies burnout as "a syndrome of emotional exhaustion and cynicism that occurs frequently among individuals who do 'people-work' of some kind" including a "tendency to evaluate oneself negatively, particularly with regard to one's work with clients" (Maslach & Jackson, 1981, p. 189). This definition had staying power, and continues to be a standard for exploring the syndrome (Bres, Salanova, & Schaufeli, 2007; Chauhan, 2009). According to Maslach (2003), an important step in burnout research was development of this multi-dimensional model in comparison to previous uni-dimensional conceptualizations that emphasized only the exhaustion component.

More current conceptualizations of burnout, however, recognize a complex interaction between individuals and their organizations. For instance Maslach more recently identified burnout as a psychological syndrome that involves a prolonged response to stressors in the workplace, involving "the chronic strain that results from an incongruence, or misfit, between the worker and the job" (2003, p. 189). This perspective goes beyond the concept of overload, places more emphasis on the environment, and recognizes the interplay of a dynamic set of factors that contribute to burnout. Burnout is identified as problem with work, not with the people doing work or their social relationships (Maslach, Jackson, & Leiter, 1997). This conceptualization reflects both the expansion of scope of environments considered to be vulnerable to burnout that occurred in the 1990's (Kitaoka-Higashiguchi, et al., 2004; Schaufeli & Bakker, 2004), and increased theoretical development and understanding of the syndrome (Halbesleben & Buckley, 2004). Practical measurement and discussion of burnout, however, continues to largely focus on the classical conceptualization of burnout described by Maslach and colleagues, distinguished by three components: emotional exhaustion, depersonalization, and diminished personal accomplishment (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001, p. 500).

The initially accepted components of burnout were emotional exhaustion, depersonalization, and reduced personal accomplishment (Cordes & Dougherty, 1993). These dimensions, developed to describe stress responses in a health and human services setting and measured by the Maslach Burnout Inventory – Human Service Survey, are operationalized in more general terms in the Maslach Burnout Inventory – General Survey as exhaustion, cynicism, and efficacy (Maslach, Jackson, & Leiter, 1996). The

difference between the two sets of dimensions is the replacement of a focus on persons in the first with work tasks and environment in the second. An understanding of the dimensions is important because they have different causes and outcomes for affected individuals (Bakker, Demerouti, & Schaufeli, 2002). Emotional exhaustion is defined is a state of feeling used-up, depleted, and drained of emotional resources (Cordes & Dougherty, 1993). It is manifest by sensations of frustration, irritability (Freudenberger, 1977; Gaines & Jermier, 1983) and being overextended at work (Maslach & Leiter, 2008). Emotional exhaustion has been identified as the central component of burnout (Cordes, Dougherty, & Blum, 1997; Maslach, Schaufeli, & Leiter, 2001), and the characteristic that sets the burnout syndrome apart from other job related stresses. The second burnout component identified by Maslach and Jackson for investigation (1981) was depersonalization.

Depersonalization is another widely accepted component of burnout, and has been found by research to be closely related to emotional exhaustion. Along with emotional exhaustion, depersonalization is accepted as a core burnout dimension (Maslach & Leiter, 2008) and research has found strong correlations between the two (Schaufeli & Salanova 2007). Depersonalization is manifest though cynicism, detachment, and callused attitudes towards others in the workplace (Cordes & Dougherty, 1993; Maslach & Leiter, 2008), and is thought to be an attempt at reducing distress through distancing oneself from the perceived source of emotional strain and exhaustion (Leiter, 1989). If the needs of clients or patients in the workplace become so overwhelming that caring about them causes pain, one way to reduce the pain is to care less. Cynicism, as measured in the Maslach Burnout Inventory – General Survey involves a similar distancing, only directed

towards the work itself rather than persons in the workplace (Bakker, Demerouti & Schaufeli, 2002). The final dimension of burnout, reduced personal accomplishment is cognitively distinct from the other two.

Reduced personal accomplishment differs in some important respects from the other two components of the standard burnout model. Reduced personal accomplishment, operationalized as reduced efficacy in the Maslach Burnout Inventory – General Survey, refers to feelings that one is less capable of effective performance. Unlike exhaustion and cynicism, efficacy is a beneficial mental state; the Maslach Burnout Inventory reverses the efficacy score to arrive at a measure of reduced personal effectiveness. Reduced efficacy involves a negative self-assessment of one's capabilities (Cordes & Dougherty, 1993; Maslach, Jackson, & Leiter, 1997) and a feeling that one's efforts are unappreciated (Cordes, Dougherty, & Blum, 1997). Reduced efficacy is sometimes excluded as a factor in burnout research (Day, Sibley, Scott, Tallon, & Ackroyd-Stolarz, 2009), and has been identified as having a weak relationship to exhaustion and cynicism (Bres, Salanova, & Schaufeli, 2007; Demerouti, Bakker, Nachreiner & Schaufeli, 2001). The reason inefficacy is controversial is that it is thought to more akin to a behavioral outcome than an affective burnout dimension. However, feelings of efficacy have also been identified as a core construct influencing performance (Bandura, 1977, 1991), a rationale supporting its inclusion in burnout research.

Together, the burnout dimensions assess an array of effects. Exhaustion and cynicism are the core affective components, and are measured with along with efficacy, a factor important in assessing work performance. Maslach and Leiter (2008) described the exhaustion dimension as a measure of individual strain, cynicism as an evaluation of

interpersonal relationships, and efficacy as an assessment of one's relationship with oneself. The progression of the burnout syndrome in individuals has been an area of considerable research and theorizing, with models offered by noted authors including Maslach, Leiter, Cherniss, and Cordes (Burke & Greenglass, 1995; Cordes, Dougherty, & Blum, 1997; Leiter & Maslach, 1988; Leiter, 1989). Arguably the most widely known and applied model (Angerer, 2003), developed by Golembiewski, uses the Maslach Burnout Inventory to measure burnout levels and orders the results into eight phases of increasing severity (Figure 2). The model has been applied internationally, in both the private and public sectors, to thousands of participants (Golembiewski, Boudreau, Ben-Chu, & Hauping, 1998; Golembiewski, Boudreau, Goto, & Murai, 1993). The Golembiewski model identifies emotional exhaustion as the most serious and heavily weighted burnout dimension, followed by decreased efficacy and then depersonalization (Golembiewski, Boudreau, Ben-Chu, & Hauping, 1998). The model's eight phases are also associated with multiple marker symptoms, including health, job involvement, helplessness, work satisfaction, tension, and self-rated productivity (Golembiewski, Boudreau, Goto, & Murai, 1993). Research has also focused on workplace conditions and burnout, finding correlations between the burnout dimensions and numerous conditions that exist on the job.

Stress Sources and Burnout

The purpose of reviewing the literature related to burnout stress factors, or stressors, was to compare those identified in the general burnout literature to those associated with project management. The results of the comparison were used to determine whether a research case was warranted. While the interplay of different

	Phases							
MBI Subscales	I	II	III	IV	V	VI	VII	VIII
Depersonalization	Lo	Hi	Lo	Hi	Lo	Hi	Lo	Hi
Personal accomplishment	Lo	Lo	Hi	Hi	Lo	Lo	Hi	Hi
Emotional exhaustion	Lo	Lo	Lo	Lo	Hi	Hi	Hi	Hi

Figure 2. The Golembiewski eight-phase model of burnout. From "Models of burnout: Implications for interventions" by A. Richardson & R. Burke, 1995. *International Journal of Stress Management*, *2*(1), 35. Copyright 1995 by the American Psychological Association. Reprinted with permission.

stressors is complex and varied (Dolan & Renaud, 1992), and stress factors identified in the burnout literature can be viewed from multiple perspectives, two overarching categories are stressors associated with the work environment and those related to individual characteristics. Work environment stressors leading to burnout include those related to jobs, interpersonal relationships, and organizational-level factors (Gaines & Jermier, 1983).

Organizational Level Stresses

The burnout literature establishes a strong case for considering organizational-level stressors' relationship to burnout. Organizational-level work environments, including physical danger (Gaines & Jermier, 1983) and/or wasteful administrative policies and procedures (Dowler, 2005; Erera, 1992) are significant sources of work stress. The impact of adverse policies can lead to employee frustration, feelings that they are wasting their time, and the belief that work conditions are beyond their control. Inflexible rules, for instance, impact the amount of autonomy and controllability employees are able to exercise in the workplace. The effects of bureaucratic policies can interact with the firm's work climate to foment burnout.

Organizations with weak or non-supportive climates, and managers who do not recognize the stress levels of employees, allow strain to build and foster a burnout climate (Chauhan, 2009). Kalimo, Pahkin, Mutanen and Toppinen-Tanner's (2003) longitudinal research, a study spanning ten years, assessed an organizational climate's relationship with burnout. Over that period the environment of burned-out employees considerably worsened in the areas of support from bosses, cooperation in the work place, and autonomy, all factors related to organizational climate and culture.

Challenging work, clarity of roles, and an appreciative environment supported wellness (non-burnout). The research showed that work climates which either support or detract from employee well-being are persistent. That climate is built upon the actions and decision of employees, especially managers.

Managers play an important part in establishing the organizational climate, including factors contributing to stress such as a lack of supervisory support and authoritarian leadership (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Burke & Greenglass, 1995). While stressful interactions with supervisors may be localized to particular work positions, when authoritarian, non-participative leadership is the organization's norm stress emanating from supervisors can also be a part of the firm's broader culture. When these styles are widespread, stress levels may be generally higher as well. Researching the relationship between organizational climate factors and burnout, Cordes, Dougherty and Blum (1997) found that non-contingent punishment and contingent reward, two methods associated with an authoritarian management style, were related to depersonalization and reduced personal accomplishment. Fairness and the perceived locus of control are other climate factors thought to effect burnout in organizations.

The casual attribution theory of burnout, developed by J. E. Moore (2000), describes the relationship between burnout, organizational commitment, and turnover. The theory asserts that individuals will consider the causes of situations, including the exhaustion component of burnout, when framing a response. From this perspective, employees are likely to become dissatisfied and lose commitment to the organization when they perceive the cause of exhaustion to be external to themselves and under the

control of others in the organization. Similarly, intent to leave will be formed when workers perceive that the situation is likely to continue and is again beyond their control, in the hands of unsympathetic others in the organization. Research findings have been consistent with J. E. Moore's model.

Bakker, Demerouti and Verbeke (2004) researched the relationship of in-role and extra-role job performance related to burnout. The relationship between role performance and burnout levels were predicted based on the job demands-resources model and the results were found to be consistent with the J. E. Moore (2000) model. A relationship between disengagement and exhaustion was identified, indicating that employees emotionally withdrew from work when they determined the source of strain was beyond their control. In a related vein, Maslach and Leiter researched the relationship between six workplace domains and the development of burnout, finding that the "tipping point" for workers in that study was the perception of unfair treatment over which they had no control (2008, p. 508). Along with organizational climate, the characteristics of individual jobs influences worker stress levels.

Job Stress

Factors associated with individual jobs are another other category of work environment related to stress and burnout (Ahola, et al., 2000). Commonly identified job stressors include work quantity, role problems, and interpersonal relationships. The quantity of work required for a job was one of the earliest characteristics identified as a burnout-related condition (Freudenberger, 1974, Maslach, 1976) and has been correlated with stress and burnout in numerous research studies (Cordes & Dougherty, 1993; Cordes, Dougherty, & Blum, 1997; Houkes, Janssen, & De Jonge, 2001). An excessive

quantity of work is thought to deplete the energy of employees, leading directly to the exhaustion component of burnout. It is not only the amount and frequency of work that matters; recovery time also plays an important role. Workers can return to a demanding job if they have time to recover their stamina. If not, they may gradually become run-down and reach a point of exhaustion (Maslach & Leiter, 2008). While the depletion of energy associated with excessive work demands was originally observed in client-patient relationships in caring profession settings, it has since been observed to be a generally encountered stressful work factor. Along with quantity of work, stressful challenges can arise from the roles employees assume to meet job requirements.

Role stress, with sub-categories of role ambiguity and role conflict, is cited as a burnout factor in numerous articles (Erera, 1992; Hansung & Stoner, 2008; Leiter, 1991). Both sub-categories are consistently correlated with burnout (Maslach, Schaufeli, & Leiter, 2001), and both share uncertainty as a root component. Role ambiguity concerns uncertainty about job responsibilities, goals, resources, and feedback about performance (Cordes & Dougherty, 1993; Posig & Kickul, 2003). When this aspect of a job is present it contributes to exhaustion by making decisions about how to use one's energies harder and also raises the possibility of misdirecting one's efforts. Role ambiguity can be associated with different levels and types of work. Erera's research (1992) found that supervisors experience different types of burnout-inducing stress than blue-collar workers. The emotional strain associated with demanding human contact experienced by lower-level workers was replaced with strain from working with organizational polices that conflicted with values, ambiguous roles, and procedures that were perceived to prevent effectiveness and productivity for supervisors. Hansung and Stoner (2008)

found a relationship between role stress and intention to leave, mediated by burnout, in a sample drawn from social workers across California. Role stress was significantly correlated with burnout, and when both factors where high workers formed an intention to depart their organizations. Von Emster and Harrison (1998) researched the relationships between role ambiguity, burnout, and attitudes towards work, and determined that role ambiguity was related to higher burnout, negative assessment of control, and lower assessments of worker job performance. The other component of role stress, role conflict, is cited in numerous cited as well.

Role conflict involves balancing and resolving competing demands between acknowledged roles. Jobs including role conflict are thought to require more energy from the holder, leading to exhaustion and contributing to burnout (Leiter & Maslach, 1988). The drain comes not only from the cognitive energy expended in weighing courses of action, but also from the emotional stress of balancing competing loyalties and interests. The experience of conflicting demands from clients and supervisors is a typical and widespread role conflict scenario (Cordes & Dougherty, 1993; Posig & Kickul, 2003). Role conflict was found to have a significant relationship to exhaustion in Jackson, Turner and Brief's (1987) assessment of job characteristics and burnout among public service lawyers. Their research data indicated a significant increase in effort required to perform effectively by respondents reporting role conflict, contributing to emotional exhaustion.

Role conflict is also thought to be a common job attribute required of those working on the interface between separate organizations or environments. Those boundary-spanning jobs, such as working in the interface between functional areas within

a firm or between the organization and the external environment, have been identified as stress-prone (Cordes & Dougherty, 1993; Menon & Akhilesh, 1994; Zohar, 1997). Singh, Goolsby, and Rhoads (1994) found that boundary-spanning customer service representatives rated high in all three burnout dimensions, with depersonalization scores that were higher than any other professional group that had been assessed using the Maslach Burnout Inventory to that time. Role conflict and ambiguity both concern job tasks and how performance relates to others in the workplace. Interpersonal relationships, in turn, comprise another distinct category of job stress.

The workplace is a primary setting for persons to establish social ties, and emotional support from supervisors and colleagues can either be a job resource, negatively related to burnout, or source of strain when social interactions are missing or unpleasant (Leiter, 1991). For instance, Leiter, & Maslach (1988) found support for the effect of social relationships in the workplace related to burnout. Their research showed that negative interactions with peers and supervisors were associated with higher levels of emotional exhaustion, depersonalization, and lower personal accomplishment, and that weak social relationships were also associated with lower organizational commitment. Workers who experience emotional exhaustion, and who have underutilized their social ties to co-workers and supervisors, are thought to be more susceptible to depersonalization and feelings of inefficacy (Leiter, 1991). Himle, Jayaratne and Thyness's (1989) research concerning the effects of emotional support from supervisors and colleagues among social workers found that such support was positively associated with work satisfaction and negatively related to burnout. However, emotional support did not buffer the effects of burnout once workers felt it. Research that included two

disparate sample groups, teachers and bank employees, found that emotional exhaustion was significantly related to both workload and social support (Houkes, Janssen & De Jonge, 2001). Another factor related to role stress and social relationships, job autonomy, was found to be a stressor associated with burnout (Hansung & Stoner, 2008; Maslach & Florian, 1988). Job autonomy concerns the degree of control employees have over the work they do. The job demand resources model asserts that the lack of opportunity to exercise choice and demonstrate skills in highly controlled jobs is a significant stressor (Karasek, 1979). Stressful features of individual jobs and the organizational environment interact with the final stress category, personal characteristics, to determine the degree of burnout experienced by workers.

Personal Characteristics

The personal characteristics of workers have also been found to have significant correlations to burnout and are routinely included in burnout research, either as specific factors of interest or to serve as control variables. To facilitate understanding and analysis, personal characteristics may be divided into two sub-categories: mental states and demographic attributes. The components of burnout (exhaustion, cynicism, and inefficacy) are themselves psychological factors, and a challenge for researchers has been to distinguish between them and an employee's preexisting mental condition. Mental states and attitudes include personality characteristics, persistent moods, and perspectives that employees bring to the workplace. Attitude is one such perspective. As already noted, exhaustion is likely to affect those employees possessing an attitude of high involvement with work (Cordes & Dougherty, 1993) because of the disappointment and disillusionment resulting from a realization that goals may not be met or work does not

satisfy needs. Highly involved, dedicated, employees are also often concerned about their careers and professional status, and lack of promotion potential in jobs has accordingly been found to be related to emotional exhaustion (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Maslach & Florian, 1988) and feelings of personal inefficacy (Cordes, Dougherty, & Blum, 1997). Promotions and career advancement can provide both intrinsic and extrinsic motivation, making them potent motivators for excelling in the workplace or sources of dejection when those opportunities are lost. The intrinsic motivational component relates to demonstrating competence to peers and gaining their esteem, as well as the personal satisfaction derived from advancement. Extrinsic motivation arises from considerations like pay and potentially better working conditions. Gaines and Jermier (1983) researched both organizational and external environment stress factors experienced by police officers, and found that a lack of promotion opportunity had the strongest relationship with both the intensity and frequency of emotional exhaustion.

Another psychological stressor that can lead to alienation and emotional distancing for both highly involved and more disengaged workers is the possession of unrealistic expectations about the workplace (Halbesleben & Buckley, 2004). R. Lee and Ashforth's (1996) meta-analysis of burnout articles identified a significant correlation between unmet expectations and emotional exhaustion. Expectations, when unfulfilled, can be interpreted as psychological demands, contributing to energy depletion and exhaustion. When regularly fulfilled, however, expectations become resources that contribute to one's motivation and well-being at work (R. Lee & Ashforth, 1996, p. 129). One significant manifestation of unrealistic expectations about work is a feeling of misfit

between the individual and their occupation. The realization of occupation misfit can often occur soon after staring a new job, making those who are newly hired more vulnerable to emotional exhaustion (Gaines & Jermier, 1983). Newly hired employees experience an interplay between numerous stressors such as an unfamiliar social environment, uncertain job tasks and responsibilities, and adjustment to a new organizational culture. Any of these areas may be important enough to be the source of significant perceptions of misfit. Self-doubt about job-fit, however, is not limited to those new to the workplace. Dolan and Renaud (1992) found that uncertainty and self-doubt concerning the capability for fulfilling job requirements was significantly related to emotional exhaustion in senior supervisors. Other personal characteristics that correlated with exhaustion in that research were low self-esteem, an orientation towards self rather than others, and a need for security. In addition to transient moods and mental states, some personality types have been associated with greater workplace stress.

Personality characteristics related to the experience of stress may be categorized according to various typologies, including the Type-A/B personalities identified by Meyer Friedman. Friedman found that Type-A personalities, characterized by impatience, urgency, aggressiveness, and tension, were associated with increased incidence of coronary illness (Sutherland & Davidson, 1989). Those who exhibit Type-A behavior can increase the experienced stress level of their job environments by obsessing about work and voluntarily overloading themselves, and the obsessive trait also results in experiencing strain more intensely (Motowidlo, Packard, & Manning, 1989). Michielson, Croon, Willemsen, Vries and Van Heck (2007) found that the Type-A characteristic was positively related to hours worked per week, work burden, and

emotional exhaustion among randomly selected workers in the Netherlands. Motowidlo, Packard and Manning's research concerning the relationship between stress and job performance in nurses found personal characteristics of the employees to be a significant stress factor, especially for nurses with a Type-A personality. Those nurses with a drive to control their environment experienced the strongest stress. A hyper need to control, characterized by excessive energy expenditure, involvement, and diminishing returns, is thought to be associated with emotional exhaustion (Bakker, Killmer, Siegrist, & Schaufeli, 2000). Along with mental states and personality types, demographic factors including age, gender, family status, and race, are important personal characteristics that have also been assessed in burnout research.

Two of the most alarming and widespread workplace and life stressors are racial and ethnic discrimination. The continuing existence of racial/ethnic bias is borne out by statistics such as the 22% difference in median full-time wages between White and Black workers, a figure which grows to 32% between Hispanics and Whites (Bielby, 2000). Racial bias is described as a pervasive, ingrained aspect of life in America (Bielby, 2000, Carter, 2007). The potential impact of the prejudice problem to organizations is indicated by the growth of minority participation in the workforce. Minorities contributed 49% to workforce growth 1996-2005, a figure expected to increase (Lerman & Schmidt, n.d.). Research has documented the continuing existence, and resulting strain, of racially based bias in the workplace.

Assessing a sample of working age adults, Krieger, Smith, Naishadham, Hartman and Barbeau (2005) found that Whites, Hispanics and Blacks working in Boston all reported discrimination in the workplace, but Blacks and Hispanics reported 40% and

19% more incidents, respectively. Deitch, et al. (2003) researched the occurrence of "everyday" racial discrimination, bias that is expressed subtly through indirect, apparently nonracially based reasoning. Because this less obvious form of racism is not as overtly alarming or easily detected as explicit bias it is thought to be potentially even more pervasive. The authors performed a meta-analysis of previous research results from commercial firms and Department of Defense organizations and found, in both settings, that Blacks reported more mistreatment on the job than Whites. The incidents asked about, such as feelings of animosity or unfair treatments, were not explicitly racist, but happened to Black workers with significantly higher frequency than Whites. Even when overt or indirect racism does not occur, making an adjustment between majority and minority cultures causes strain. Richard and Grimes (1996) reviewed the literature to identify the stresses arising from ethnically based inter-role conflict, assessing three models of biculturalism: assimilation, alternation, and mutli-culturalism. The first two models entail significant stress for bi-cultural individuals, those persons coming from a minority culture who work in a majority-dominated workplace. The stressors include a displacement and loss of identity, tension between roles, extra effort required to adapt to the majority culture, and reduced likelihood of promotion, recognition, and acceptance. Biases in minority and majority group behavior have also been observed in the laboratory. Cox, Lobel, and McLeod (1991) studied differences in cooperative behavior between ethnically mixed and Anglo-only groups in a laboratory setting. The two different groups participated in a prisoner's dilemma game under two conditions: cooperative behavior feedback from the other group, and no feedback. The results included significant differences in individual orientations towards cooperative behavior,

with each of the minority-composition groups displaying a higher tendency toward cooperation than the Anglo groups. As individuals, each of the sets of minority students also demonstrated a tendency towards more cooperative behavior. An implication for the workplace was that minority adjustment to the majority culture could include stressful factors such as an adaptation to increased competition and lower trust.

The existence of racial stress factors was supported by James, Lovato and Khoo (1994), who studied the relationship between blood pressure (an indicator of stress and cardiovascular health problems), self reported illness, and ethnically-related workplace stressors for black workers. Significant relationships were found between blood pressure, reports of prejudice, expressiveness, and self-esteem. Expressiveness, including identification of problems and expression of discontent over unfair treatment at work, is associated with stereotyping and pressure to conform. Wadsworth et al. (2007) surveyed a randomly selected sample of London households to assess the difference in work discrimination and stress experienced at work by Anglos, Bangladeshi, and Black workers. High or very high self-reported stress was significantly more common among non-white workers (30%) than white workers (18%). The experience of stress was most common among Black workers, and for both the non-white samples the stress levels were also related to reports of discrimination. While articles focusing on stress, culture, and ethnicity emphasized the deleterious effects of bias in the workplace, the relationship between prejudice and burnout has been more scantily assessed.

Assessment of correlations the between ethnicity, race, and burnout have not been well researched, and the few studies in this area have reported mixed results. This review of the literature found few sources directly assessing the effects of ethnicity/race on

burnout, consistent with Maslach, Schaufeli, and Leiter (2001, p. 410) who noted "As for ethnicity, very few studies have assessed this demographic variable, so it is not possible to summarize any empirical trends." Evans, Bryant, Owens, and Koukos echoed this observation, stating that "ethnic differences in burnout … have not been examined. Interestingly, extant studies have, for the most part, failed even to report the ethnic compositions of their samples" (2004, p.352). The research by Evans, Bryant, Owens and Koukos assessed child-development workers and found widespread (45% of those surveyed) levels of high burnout but only marginal differences in emotional exhaustion levels between African-Americans and Caucasian-Americans. Prosser et al. (1999) reported that ethnicity was an important consideration influencing burnout levels among mental health workers, but did not include any data to reinforce their assertion. In a study specifically assessing race and job conditions, Dowler (2005) analyzed the effects of race on multiple factors, including burnout, for Baltimore city police. Race was related to a perception of increased criticism directed at Black officers, but did not translate into a significantly higher level of burnout. While the conclusion from Dowler's study indicated that Blacks were situated to experience greater stress, demographic norms recorded in the Maslach Burnout Inventory Manuel (Maslach, Jackson, & Leiter, 1996) indicate Caucasians generally experience higher levels of emotional exhaustion and depersonalization. In sum, the paucity of research relating burnout to race argues for the inclusion of that demographic factor in burnout research, including that of this research.

Research assessing burnout's relationship of other demographic factors such as age, gender, and family status, has reported mixed findings. The literature cites age as the demographic variable most related to burnout, with a negative correlation (Ahola,

Honkonen, Virtanen, Aroma, & Lonnqvist, 2008; Bakker, Demerouti, & Schaufeli, 2002; Maslach, Schaufeli, & Leiter, 2001). However, a rationale for age's relationship to stress and burnout can be made in two directions. Older, experienced employees are thought to posses more realistic expectations about their work outcomes and professional advancement, and so be less susceptible to disappointment and burnout (Chauhan, 2009). Contrariwise, age is associated with higher levels of overall life and health stress, making older workers potentially more vulnerable to burnout when any additional stress is encountered in the workplace (Menon & Akhilesh, 1994). These effects vary with the individual and the environment, with the result that the relationship between age and burnout reported for individual samples in the literature is inconsistent. Research has found positive (Hansung & Stoner, 2008), negative (R. T. Lee & Ashforth, 1993), and negligible (Bakker, Demerouti, & Schaufeli, 2002) relationships between age and burnout. Research including an occupational group with an established history in the burnout literature, such as teaching, nursing, or social work might be able to form a hypothesis about the relationship between burnout and age. However, a sample from a previously unexamined profession would be breaking new ground in this area. The implication for this research is that the rationale for a significant relationship between burnout and age cannot be solidly constructed, and no hypothesis about the direction of correlation was proposed. The indeterminate nature of the relationship between age and burnout is true for other demographic factors as well.

The relationships between gender, family status, and burnout have also been assessed with no firm consensus of the strength of relationships emerging. The situation is one where personal characteristics may not be as important as the effects of the work

environment on individuals. For example, female workers may be less prone to macho aspirations of rugged individualism (Haynes & Love, 2004), allowing them to build closer social ties and display pent-up emotions, avoiding exhaustion and burnout. However, women working in male-dominated professions may experience more stress due to lack of promotion opportunity, resulting in frustration and exhaustion (Gaines & Jermier, 1983). Family status has been related to lower levels of burnout in some studies (Dolan, 1987; Maslach, Jackson, & Leiter, 1996), but Greenglass, Burke and Ondrack (1990) found that men with children experienced significantly more burnout. Altogether, the disparate results of studies including age, gender, and family status made specific hypothesis formulation for the research a problem.

Because the results of previous research concerning demographic factor's relationship with stress have been inconsistent, no directional hypothesis concerning personal characteristics was proposed for this research. Additionally, the literature supports the contention that organizational and job variables are more consistently influential than personal characteristics in contributing to workplace stress and burnout (Maslach, 2003). The many sources of workplace stress, when experienced at a level that results in pronounced burnout, have results that affect both organizations and individuals.

Consequences of Burnout

The reason for analyzing the outcomes from burnout relates to the issue of assessing the severity of impact of the syndrome, and whether it an occurrence of widespread concern. Concerning this research, the ill-effects identified in the burnout literature are compared to the roles identified for project managers to determine whether the research was warranted. Because outcomes affecting job performance also affect

organizational performance, the three categories considered in assessing burnout sources may be combined into two: organizational outcomes and personal outcomes.

Organizational Burnout Outcomes

The consequences of burnout in the workplace have been a subject of interest since burnout's recognition as a distinct psychological problem. This attention was natural, given that a dramatic impact of the syndrome, the reversal of attitudes of professionals working in people-care settings, was one of the first characteristics associated with burnout. Early authors chronicled burnout's effect on performance, noting that those affected were "less productive, less energetic, and saddest of all, less interested in their jobs" (Freudenberger, 1977, p. 26) and that burned-out care givers were prone to avoid their patients, instead spending time with other staff members (Maslach, 1976).

The quantitative study of burnout and its effects got off to relatively slow start; Kahill (1988) reported that by 1988 only 100 quantitative research articles were in press. Many of the primary source research articles identified for this literature review date from the late 1980's and early 1990's, the time of an expansion in burnout research. Multiple reviewed articles included summary lists of those burnout outcomes that effect organizations. Burnout consequences include major human resources management problems and challenge areas such as commitment, job satisfaction, absenteeism, and turnover (Cordes & Dougherty, 1993; Halbesleben & Bowler, 2007; Kanwar, Singh, & Kodwani, 2009). The reviewed research articles support a view that burnout has consistently resulted in serious consequences for organizations.

One of the most commonly cited consequences of burnout in the research literature is absenteeism. Bakker, Demerouti, De Boer and Schaufeli (2003) assessed job stressors and burnout among production workers from the perspective of the job demands-resources model, and found a relationship between the burnout dimensions of exhaustion and cynicism, and absence frequency and duration. Consistent with the job demands-resources model, demands and resources had different affective and behavioral effects on workers. Job demands as stress factors were related to cynicism, exhaustion and length of absences, while resources were related to worker commitment and frequency of absences.

Firth and Britton's (1989) research addressed the relationship between the burnout dimensions, absenteeism, and turnover among British nursing staff, finding that burnout was a significant predictor of both undesirable outcomes. Absenteeism was significantly correlated with emotional exhaustion, and was further specifically related to unpleasant interactions with supervisors. The depersonalization component of burnout was the only dimension significantly related to turnover. Summarizing the conclusions from their considerable body of research to date, Maslach, Jackson and Leiter (1997) asserted that absenteeism, along with turnover and low morale, was positively related to burnout, and that the outcomes of burnout were serious problems for workers, clients, and organizations. Another problem associated with distancing oneself from the workplace, turnover, is also a subject addressed in the burnout research.

De Croon, Sluiter, Blonk, Broersen and Frings-Dresen (2004) performed longitudinal research on the effects of stress and strain on Dutch truck drivers and found positive correlations with both turnover and absenteeism. Stress and strain were analyzed

from the perspective of job demand-control theory (Karasek, 1979) and measured through two factors, fatigue and recovery opportunity. The job demand-control theory predicts that high stress levels at work are associated with environments of low individual control and high demand. Support can be included as a third dimension of the model to predict stimulating, boring, and overly-stressful environments (Figure 3). In the De Croon et al. study fatigue was explicitly related to the exhaustion component of the three-dimension burnout model, and the research results found a positive relationship between turnover and job strain, consistent with job demand-control theory, and also with Leiter's (1991) concept of the progression of burnout strain. The research also reported a correlation between time on the job and turnover, consistent with previous research and observations about inaccurate job expectations by newly-hired workers leading to stress and strain (Bakker, Demerouti, & Schaufeli, 2002).

Earlier research relating to turnover was performed by Drake and Yadama (1996) who assessed the relationship of burnout components in a social work setting (child services) and found that burnout was related to lower job performance and greater turnover intention. Research into the relationship between perceived social equity, negative communications, burnout, and intention to leave (Geurts, Schaufeli, & De Jonge, 1998), found that unpleasant negative communications were related to perceived inequity, and this perception resulted in either an intention to leave or emotional exhaustion. Thus, while exhaustion may not have been a direct antecedent to turnover intention, it was an indicator that conditions leading to turnover exist within a firm. Another performance-related outcome closely associated with burnout in the literature is job satisfaction.

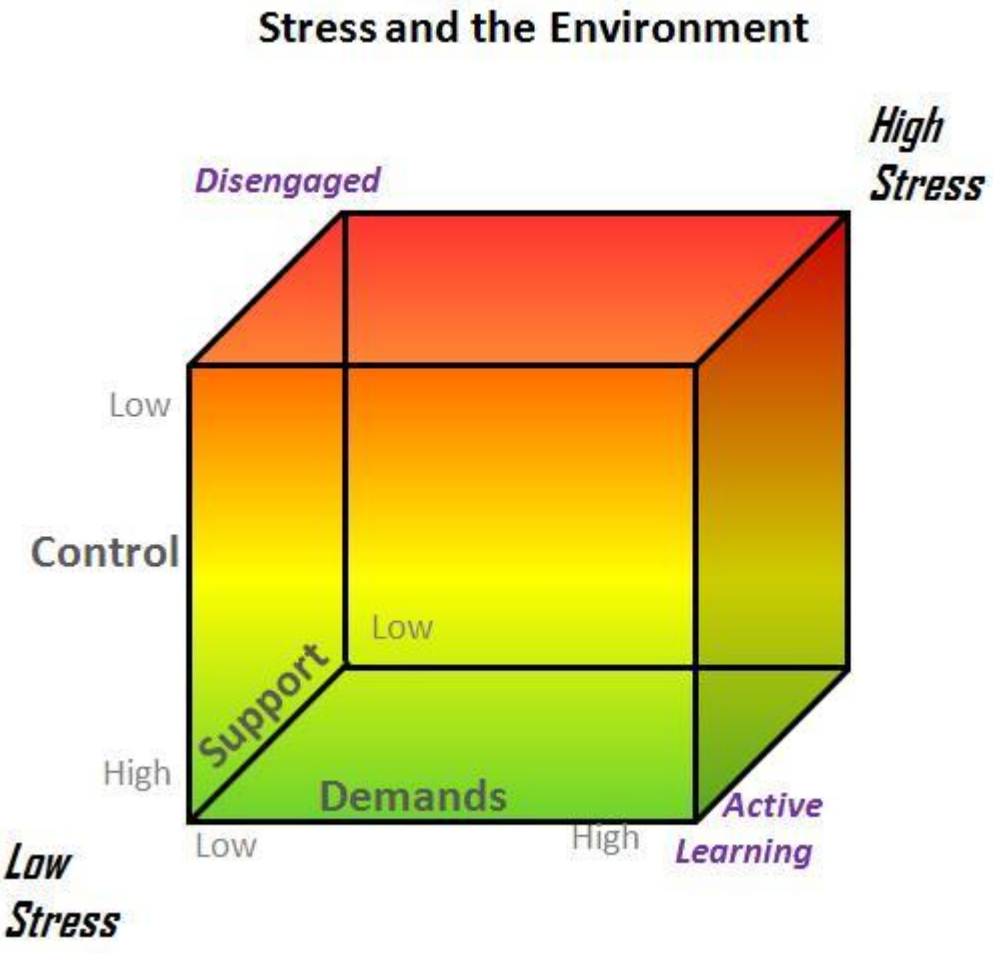

Figure 3. Job demands-control-support model. Concept is based on "The job demand-control (-support) model and psychological well-being: A review of 20 years of empirical research" by M. Van Der Doef & S. Maes, 1999, *Work & Stress, 13*(2), 87-114. doi: 10.1080/026783799296084.

Job satisfaction is an important indicator related to performance and is an attitude of interest in the burnout research arena. The results of studies that have assessed the relationship of burnout with job satisfaction indicate that the two concepts are strongly related but distinct (Maslach, Schaufeli, & Leiter, 2001). Halbesleben and Buckley's research (2004) assessed the importance of attribution of sources of stress to their outcomes as predicted by causal attribution theory (J. E. Moore, 2000). They also measured the relationships between burnout dimensions and important job outcomes, finding significant relationships between exhaustion, job satisfaction, intent to leave, and commitment. Other research has also found a negative relationship between burnout and job satisfaction.

The role of the boundary spanning aspect of jobs related to burnout and worker attitudes was the subject or research by Singh, Goolsby, and Rhoads (1994). Boundary spanning is related to role conflict (Cordes & Dougherty, 1993), an identified job-specific stress condition. The researchers surveyed customer service representatives and found relatively high amounts of stress in all three burnout dimensions, especially depersonalization. Burnout was found to have a significant negative relationship to job satisfaction and organizational commitment, and was positively related to turnover intention. In a more recent article, Kanwar, Singh and Kodwani, (2009) assessed the relationship between job satisfaction, work-life balance, and burnout. As expected, satisfaction and work-life balance were positively correlated, and both were negatively related to burnout. Likewise, Koustelios (2005) found that job satisfaction was negatively related to emotional exhaustion and depersonalization, and positively related to personal accomplishment among teachers. The first two factors had a strong

relationship to job satisfaction, while accomplishment was only weakly related. The research indicated that job satisfaction was most strongly derived from intrinsic motivators. Like job satisfaction, organizational commitment is another attitude of interest to firms, and one that has been the subject of burnout research.

Burnout research has found consistent negative relationships between the syndrome and organizational commitment. Research by Halbesleben and Buckley (2004) and Bakker, Demerouti, De Boer and Schaufeli (2003) in generalized work settings found lower organizational commitment among the adverse consequences related to burnout. Similarly, Jackson, Turner, and Brief (1987) performed research to ascertain the relationship between numerous job variables, burnout, performance, and motivation. The research model, informally stated, held that newly hired workers would enter jobs with high motivation, and that their level of organizational commitment would drop as they came to grips with the demands of their workplace. The research results indicated a significant negative relationship between all three burnout dimensions (emotional exhaustion, depersonalization, and reduced efficacy) and organizational commitment. The results also found partial support for the contention that exhaustion would be related to the perceived amount of effort needed to handle work requirements, and therefore be related to job performance.

In another study, Bakker, Demerouti and Verbeke (2004) found that insufficient resources were directly related to disengagement from work as well as to exhaustion. Exhaustion, in turn, also had a secondary effect on disengagement. The results were consistent with causal attribution theory (J. E. Moore, 2000) and with the job demands-resources model. The job demands-resources model holds that demands are more related

to exhaustion and burnout, while rewards are correlated to worker motivation and commitment (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). R. Lee and Ashforth (1993) assessed the incidence of burnout against six factors: social support, direct control, indirect control, role stress, helplessness, and job satisfaction. The study's analysis highlighted the complex interrelationships between stress, motivation, and burnout. Role stress and job satisfaction were most strongly related to emotional exhaustion, which in turn effected depersonalization and commitment.

Leiter and Maslach (1988) researched the relationship between burnout, work's interpersonal environment, and organizational commitment in a sample of nurses and support staff. Burnout among the sample was positively related to interpersonal conflict, and negatively related to organizational commitment. Unpleasant interactions with supervisors were especially related to lower commitment, suggesting that this factor alone could significantly sour an employee's attitude towards the firm without the intervening effects of burnout. The significance of the study reached beyond commitment because organizational commitment is an important antecedent to turnover intention. The interrelation between burnout consequences leads to a discussion of another outcome of central concern to organizations, job performance.

Each of the burnout consequences reviewed above (absenteeism, turnover, dissatisfaction, and commitment) are important in their own right, but are also indicators of another outcome of primary interest to organizational well-being: job performance. A challenge in measuring job performance, also encountered when determining the importance of the personal effectiveness/efficacy component of burnout, is that

subjective self-reports may not match objective assessments. Just as depersonalization/cynicism can be considered a component of job effectiveness in itself, especially in the caring professions, other job effectiveness components can be assessed to build a conclusion about overall performance. For instance, Motowidlo, Packard and Manning's (1986) research with nurses found that job performance factors including consideration of others, concentration, composure, perseverance, and adaptability were impacted by workplace stress. Together, these factors constituted a portrait of lower overall performance. Other reviewed articles confirmed the negative relationship between burnout and job performance.

Numerous other reviewed articles assessed the relationship between burnout and job performance, either as a primary aim of the research or as a related outcome. Multiple stressors and burnout outcomes among school teachers were assessed by Schwab, Jackson and Schuler (1986). The research found that reduced job performance, primarily identified through self-reported reduced effort on the job, was a consequence related to burnout, along with increased absenteeism and turnover intention. Also, as noted above, Jackson, Turner & Brief (1987) found partial support for a relationship between exhaustion and job performance measured by personal estimates of the amount of effort to accomplish work tasks.

Wright and Bonett (1997) conducted longitudinal research over at three-year period among the staff of a public company and found that emotional exhaustion was significantly related to subsequent job performance. However, they no found no such relationship for depersonalization or feelings of inefficacy. The longitudinal nature of the research, compared to the one-shot cross sectional method used in most burnout

assessments, was significant, as was the use of actual employee performance assessments. Wright and Cropanzano (1998) found a significant relationship between emotional exhaustion and decreased job performance among social workers, as anticipated from a conservation of resources theory perspective. The data also supported correlations between emotional exhaustion and positive/negative affective personalities; the negative personality disposition was associated with higher levels or emotional exhaustion. However, contrary to expectations, there was no relationship between emotional exhaustion and job satisfaction, or between affective personality traits and job performance.

More recently, Stamper and Johlke (2003) conducted survey research to ascertain the relationships between role stress, organizational support, and job performance experienced by those working in boundary spanning jobs. Overall, a combined measure of job performance showed a negative relationship with role stress in both high and low support environments. However, the relationships between individual components of role stress (a combination of ambiguity and conflict), job satisfaction, performance, and intent to remain were varied, moderated by degree of organizational support. The results from the research, combined with other reviewed articles establish a strong case for the relationship between burnout and job performance.

One reviewed source provided a summary-level assessment of the relationship between burnout and several of the organizational outcomes found in the burnout literature. R. T. Lee and Ashforth's (1996) meta-analysis of previous research supported the dimensions measured in the Mashlach Burnout Inventory and the conservation of resources theory contention that the loss of valued resources does not equal returns in

burnout environments. According to that theory, emotional exhaustion and reduced personal accomplishment are thought to develop in parallel, interacting and either mitigating or reinforcing each other. The meta-analysis found significant correlations between exhaustion, the primary burnout dimension, and turnover intention, job satisfaction, and job involvement. Altogether, the literature supports the recognition of burnout as a condition with serious negative implications to organizations through the outcomes of employee absenteeism, turnover, commitment, satisfaction, and performance. While there is considerable overlap between areas of personal and organizational outcomes, some burnout consequences have been described as mainly affecting individuals rather than firms.

Personal Burnout Outcomes

The impact of burnout on the welfare of persons is as significant as its ill effects for organizations. A primary reason for studying the syndrome arose from observation of its detrimental effects on persons. Anyone who has experienced burnout can attest to toll it takes on well-being. Numerous articles cite the seriousness of burnout's personal outcomes to provide a rationale for research or in support of models to explain the burnout syndrome. While the three dimensions of burnout are themselves consequences of major importance to individuals, other explicit outcomes have been described in the burnout literature as well. The outcomes are both mental and physical in nature, with psychological effects that include anxiety, depression, irritation, and insomnia, and physiological indicators that include increased incidence of cold and flu, headache, and cardiovascular problems (Day, Sibley, Scott, Tallon, & Ackroyd-Stolarz, 2009; Euwema, Kopt, & Bakker, 2004; Yip, Rowlinson & Ling, 2008). Though both service providers

and their clients are affected by burnout, the literature focuses on the persons experiencing the primary symptoms, those proving a service of some kind or performing work in organizations.

The association between burnout and unmet professional expectations has been noted, and the affective emotional outcomes associated with stalled advancement are frustration and disappointment. The degree of frustration at work has been related to the effort required to perform in comparison to rewards received; an effort-reward imbalance leads to emotional strain. Bakker, Killmer, Siegrist and Schaufeli (2000) measured the amount of intrinsic effort and extrinsic effort required to perform at work in relation to burnout. Intrinsic effort includes factors related to self-generated Type-A strain, such as competitiveness, irritability, and a need for control that can be measured and combined to provide a measure of frustration experienced in the workplace. These Type-A mental distractions, reflecting a need to maintain control, were found to moderate burdens of work (extrinsic efforts) and feelings of burnout. The primary focus of the research, that an imbalance of extrinsic efforts and rewards is associated with burnout, was also supported.

Research assessing the relationship between work stress and health outcomes has found significant relationships. Lindblom, Linton, Fedeli and Bryngelsson (2006) measured the interrelations between five workplace variables, three stress outcomes, and the three burnout dimension in a broad sample of working age residents. Almost a fifth of the sample (N = 3,000) was categorized as experiencing high-level burnout, and the researchers found that the exhaustion dimension was strongly related to depression and anxiety, and moderately related to insomnia. Stressors that correlated with exhaustion

included work content, social support, workload, being treated fairly, and value congruence. Stansfeld, Bosma, Hemingway and Marmot (1998), conducted longitudinal research that assessed the relationship between workplace stresses, physical and social functionality, and mental health. The findings identified workplace strains, including efforts-rewards imbalance, low control over work, and poor social support, which were related to decreased physical functionality. Physical functioning, as measured by the SF 36 survey instrument used in the study, includes essential mobility, strength, and endurance activities such as walking, bending, and lifting groceries (Medical Outcomes Study, n.d.).

The psychological, physical, and behavior effects of burnout can impact employee well-being both on the job and at home. Jackson and Maslach (1982) explored the connection between job-generated stress and home life for a sample of police officers. They found that those officers experiencing moderate and higher burnout at work were more likely to be angry, dissatisfied, and anxious away from the job. The symptoms of burnout were not limited to psychological effects; physical exhaustion and insomnia were significantly correlated with emotional exhaustion as well. Use of alcohol and withdrawal from friends and families were also higher among those experiencing elevated stress at work. The concept of life-stress describes person's experiences as a whole (Greenglass, Burke, & Ondrack, 1990) and research results point out that stress resulting from work affects health, home, and family, despite efforts to mentally compartmentalize stress and leave it at work. Ahola et al. (2000) researched the relationship between job strain, burnout, and depression and found that while the occurrence of burnout and depression were related, one did not subsume the other.

Similar to the relationship between exhaustion and job satisfaction, those who are depressed are not necessarily burnt-out at work. The study found that frustration mediated the impact of stressful conditions at work, potentially contributing to a vicious cycle like that noted in the interaction of environment and burnout in other studies (Zohar, 1997; Bakker, Demerouti and Verbeke, 2004). Overloaded workers experiencing a degree of emotional exhaustion at work may become frustrated, an emotion that further drains their energy resources, contributing to additional exhaustion and depression. Kahili (1988) reviewed the existing research and found that a host of physiological symptoms, including sleep difficulties, headache, colds, and flu were reported along with symptoms such as fatigue and physical depletion in burned-out persons. Such outcomes might be expected from a syndrome with exhaustion as its core component.

Summary of Burnout Literature Review Section

The previous literature review sections provided an overview of the burnout syndrome and set the stage for its consideration as a concern for project managers. The first section traced the history of burnout studies, from their start in the people-serving profession to research in more generalized work environments. The burnout dimensions were described, along with the organizational, job, and personal factors that the literature identified as causing burnout/stress in workers. Widespread stress factors included organizational policies, lack of supervisor support, overload, role stress, and boundary spanning. The final section, a description of burnout outcomes, identified organizational problems such as absenteeism, turnover, motivation, commitment, and performance, and detrimental personal effects including frustration, depression, insomnia, and illness. Each of the identified burnout outcomes would be a serious handicap to project manager

effectiveness, and the reviewed literature indicates that the project management work environment includes stressors that might lead to burnout.

Introduction to Project Manager Stress

"Business is becoming increasingly projectized, and global spending on projects is now many billions of dollars annually" (Williams, 2005, p. 497).

More firms are adopting a project-based approach to operations as they recognize the benefits resulting from the flexibility, empowerment, and learning capability associated with that method of execution (Labrosse, 2005). The project management approach has risen to point of dominance in some business contexts (Lysonski, Nilakant, & Wilemon, 1989), and can be viewed as the centerpiece of a process-centric perspective of business operations (Srivannaboon, 2006). Gross capital formation, a largely projectized activity area, is estimated to involve 20% of total global economic activity (Bredillet, 2010), including 40% in India and China (World Bank, 2010), accounting for trillions of dollars spent annually. Both individual and organizational project management competencies are areas of concern perceived to seriously influence a firm's business capabilities (Crawford, 2006). Individual project manager competency is centered on managerial skills and project management tool utilization. Organizational competency takes multiple forms, including development of strategy, operational decision making, and a culture that supports core project processes and communications.

Project is defined in numerous bodies of knowledge (BOK), books and articles. Turner and Muller (2003, p. 1) reiterated Turner's often-cited definition of a project as:

> An endeavour in which human, material and financial resources are organized in a novel way, to undertake a unique scope of work, of given specification, within

constraints of cost and time, so as to achieve beneficial change defined by quantitative and qualitative objectives.

The American Management Association identified characteristics of projects, including an output, interrelated activities, deliverables, and use of multiple resources (Webster & Knutson, 2006). The Project Management Institute provides perhaps the most widely recognized definition of project as "a temporary endeavor undertaken to create a unique product, service or result. The temporary nature of projects indicates a definite beginning and end" (Project Management Institute, 2008, p. 5.). More general statements of the purpose of projects are that they are the means for "getting things done" (Labrosse, 2005, p. 23) in the firm and are the vehicles driving beneficial change (Turner & Müller, 2003). The various definitions and conceptualizations of projects agree on some central tenets.

Characteristics common to all concepts of project work include temporariness, complexity, uncertainty, change and teamwork. Temporariness arises from the definite start and finish dates established for most projects. The temporary nature of project work also establishes one of the key resource constraints under which project teams operate: time. Complexity is related to the multi-functional nature of project work; projects often draw resources from across the firm to deliver sophisticated outcomes. Both project inputs and outputs are usually complex. Uncertainty is an intrinsic part of project work, which by definition delivers bespoke, non-routine outcomes to customers. Recognition of uncertainty, in turn, propels risk management, an area of major conceptual and practical concern to the project management discipline. Change is associated with projects both through deliverables that seek to affect the environment, and through the change experienced by project teams as they proceed through the project life cycle.

Projects are most often accomplished by teams (Hoegl & Gemuenden, 2001; Jurison, 1999), characterized as temporary organizations in the project management literature. The team leader, and the individual primarily called upon to navigate through the variables and conditions inherent in project work, is the project manager.

Effective project managers are important to organizational success, and environmental influences that could impact their effectiveness constitute a worthwhile area of investigation. Early in the era of project management, at the time when PERT (Project Evaluation Review Technique) and PDM (Precedence Diagramming Method) were new techniques, Gaddis's (1959) pioneering article explored the roles and responsibilities of the project manager. The project manager is the central controlling element in project efforts, and the keystone upon which continuous efforts at project control rely. The skills required of project managers include those needed by general managers, such as technical and organizational capability, and, owing to the dynamic nature of project work and its team-based approach, the position also emphasizes leadership and communications (Gehring, 2007). Project managers, the persons most accountable for project success, are especially responsible for overcoming challenges, and must ensure that project planning and coordination are carried out responsibly (Anderson, 1992; Crawford 2000; Globerson & Zwikael, 2002).

Reporting the results of qualitative research into the effect of the organization's environment on project success, Ives (2005) and Kendra and Taplin (2004), noted that the project manager's role is central, and that changes to the project context can affect their effectiveness. Theorizing on the effects of the firm's cultural environment on project execution, the authors concluded that the culture should be adapted to support the project

manager, the person upon whom the firm depends for the skills and competency to guide projects to success. Field analysis has demonstrated that project managers play a leading role in planning and execution during all phases of the project lifecycle (Globerson & Zwikael, 2002). While the resources for attaining project quality may be shared with functional managers, the project manager always retains supervisory responsibility for project outcomes.

A growing amount academic research and increasing enrollment in professional organizations both indicate the growing importance of project managers. The increasing number of project managers seeking professional affiliations and certification signals the discipline's increasing maturity and role in business. The number of project managers certified by the Project Management Institute was 331,000 in mid 2009, up from 100,000 in 2004 (Frenette & Dochtermann, 2009) and the Project Management Institute reports that its combined membership and certification numbers are over a half-million (Project Management Institute, 2010). The membership count from this one professional organization compares reasonably well to the U.S. populations of other occupations that have been included in burnout research, such as primary and secondary school teachers (2,600,000), registered nurses (2,500,000), and accountants (1,133,580) (Bureau of Labor Statistics, 2008). The important role of the project managers is accompanied by challenging, often stressful conditions.

The purpose of this portion of the literature review is to demonstrate linkages between stressful conditions encountered by project managers and factors associated with burnout. The subject of stress experienced by project managers is not well-populated in the scholarly literature: Only eight reviewed articles identified project management

stress as a primary topic of research interest. While the project management literature does not include research on project manager stress to a great extent, it does include many articles describing work requirements and environments that can be analyzed for indications of stress. Many of those articles described conditions that are associated with burnout in the stress/burnout literature. Often, these factors are described as organizational or managerial shortfalls, or goals that should be accomplished to achieve project success. Although the discussions are not explicitly framed in terms of stress, they form a bridge between project management and factors that have been related to stress in the burnout literature. Environmental factors in common between the burnout and project management literatures include work overload, organizational policies, role stress, boundary spanning, and, managerial support. Work over-burden, one of the first work conditions associated with emotional exhaustion, is also commonly encountered by project managers.

Workload and Organizational Policies

The reviewed projected management literature included numerous references to the heavy workload faced by project managers. For instance, in research directed at discovering issues involved in coordinating the activities of virtual, cross-cultural project work teams, Oertig and Buergi (2006) found that work overload was the common experience of all interviewed teams. Slevin and Pinto (1987, p. 33) described the project manager's job as one characterized by "role overload, frenetic activity, and superficiality," a result of the wide scope of their responsibilities accompanied by limited resources and authority. Djebarri (1996) researched the effects of stress on construction site project managers' leadership effectiveness. Effectiveness was assessed using

multiple criteria including supervisor perceptions, adherence to schedules and the quality of project output. A third of the site managers viewed their jobs as high stress, and the research indicated a relationship between level of stress and leadership style. Work overload, including a fast pace and variety of demands, and poor relationships with bosses were identified as sources of significant stress.

Sutherland and Davidson (1989) also performed qualitative exploratory research into stress among construction site managers. Significant stress factors included weak communications, paperwork requirements, competitiveness within the organization, and overwork. The standard workweek for the managers was a 50-hour minimum. While some stress factors could be addressed by organizational action (e.g. better staff support) others were viewed as inherent characteristics of the job. Haynes and Love (2004) studied the sources of construction site project manager stress, how stress was handled, and how the handling strategies were related to perceived strain levels. Active, affective, handling strategies were more effective, while emotional or avoidance strategies were associated with higher levels of stress. Work overload and excessive time at the work site were most strongly related to perceived strain, with efforts at self-control, and masking or denying emotions, also identified as contributing factors. In another study, Zika-Viktorsson, Sundström and Engwall (2006) found that over 30% of those surveyed in a project-oriented firm said they were overloaded with project activities. The burden occurred in two ways: the first was the sheer amount of work to be accomplished in support of all projects. Secondly, the mental agility required to shift gears and become engaged from project to project was burdensome. The four variables that accounted for the largest amount of strain among those experiencing overload were insufficient

recovery time, insufficient work routines, lack of time to do needed work, and the number of projects requiring support.

One indictor of work overload is a shortage of time to accomplish required tasks. Nordqvist, Hovmark and Zika-Viktorsson (2004) found that time pressure was moderately associated with perceived stress in project teams, and that a strong team orientation toward the project purpose and collective ability were most strongly associated with stress alleviation and work satisfaction. An implication drawn from the research was that social relatedness and mature organizational project management support processes help reduce stress. Turner, Huemann, and Keegan (2008) conducted research into ethical considerations of human resource management practices in project-based and project-heavy organizations. Ensuring the well-being of employees in these types of firms, which are characterized by temporary assignments and rapid change, is a new challenge for human resource professionals. The stress conditions in project teams can spike during periods of intense activity and organizations concerned about employee welfare may be obligated take action to handle this occurrence. Along with overload, factors related to the temporary and quickly changing project environment may contribute to stress and insecurity among project team members.

Articles citing project manager workload mentioned other challenging and stressful conditions as well. Richmond & Skitmore (2006) explored sources of stress and their effect on project managers and team members. Along with workload, acquisition and control of resources, technological uncertainty, and conflicting priorities were identified as significant stress factors. Boundary spanning was also identified as a significant strain inducing factor , while social networks were noted as an important

stress-handling resource. All of these considerations were consistent with job-related stress factors identified in the burnout literature. Clarke (1999) wrote about the challenge if implementing project management best practices in an aerospace engineering company, noting multiple impediments that related to stress-causing conditions. Very often, projects are subject to almost continual change, requiring constant adaptation from project team members. The change wrought by projects is also threatening to others who seek to maintain the status quo within the firm for the sake of their own power and position, engendering resistance to projects. Clarke observed that executive management support might slip as the extent of change becomes known, or when the projects run into difficulties. Clear communications, essential for resolving ambiguities and adapting to change, were a recognized priority, yet often poorly executed.

The decision about how many projects to pursue with limited resources is one of several areas of organizational policy that may generate competition and stress for project managers. The project overload environment occurs when firms commit to more projects than they can support with limited resources (Clarke, 1999; Englund & Graham 1999). Project managers working in an overloaded environment may face fierce competition resources and pressure to make due with less. Maximizing the use of resources may involve pushing the limit, and project overload can strain organizational capabilities, including the human resources (Zika-Viktorsson, Sundström & Engwall, 2006).

The project management literature establishes the importance of organizational policies and procedures to project managers and identifies both as a source of challenge. Ng, Skitmore and Leung (2005) conducted exploratory qualitative research to identify stress factors experienced by construction project managers. Most types of stress

experienced by those project managers appeared to be very environmentally dependent, but bureaucracy was a major stressor identified in all environments regardless of other circumstances. Routines and standards imposed by firms on project managers were also identified as burdensome; project managers perceived little benefit beyond avoiding hassles with the organizational staff in complying with administrative requirements. Tampoe and Thurloway (1993) found that the work environment often failed to provide motivational factors important to project managers, including recognition for achievement, mutuality, belonging, power, and creative autonomy. Their survey-based research identified multiple additional organizational policy areas that fell short of expectations, including resource allocation, input to decisions, cooperation with other departments, managerial support, and sharing of rewards achieved by the organization. The research was significant for the support it gave for addressing project team member needs rather than the provision of contingent rewards to establish a positive work environment.

The project management literature also describes the quandary firms face in establishing standard project management practices. Standardized practices are thought to enable greater efficiency and effectiveness in project management through better support and control. However, routines and standards imposed by firms on project managers can also be burdensome and stressful. Reviewing the effects of firms' efforts to introduce standard project management practices, Cicmil and Hodgson (2006) noted "It becomes obvious that, frequently, the very principles of effective, structured project management methodology are simultaneously its major causes of failure" (p. 116). Beaume, Maniak and Midler (2009) wrote that efforts at standardization and quality

control resulted in "core rigidities" which stifled innovation when project managers perceived that their efforts could disrupt organizational structures (p. 167). Clarke (1999) wrote that organizational efforts at standardization can drain energy from project managers who do not see the benefit to themselves from filing reports and filling out checklists. Just as standardized processes and controls have become more common in project-oriented firms, matrix working arrangements and cross-functional teams are a work structure strongly associated with projects.

Role Stress and Lack of Support

The project management literature has consistently described how matrix working arrangements challenge the project manager's job role, an occurrence associated with stress in the burnout literature. Matrix teaming arrangements, whereby team members are drawn from functional departments across the organization, have been largely developed and implemented to support project management work (Cicmil & Hodgson, 2006; Wellman, 2007). The matrix structure includes strengths and weaknesses that affect project managers. For example, although they bring together team members with a variety of talents, matrix work arrangements inherently violate the leadership principle of unity of command because team members report to both project and functional managers (Wellman, 2007). Hodgetts (1968) explained that project managers often face the problem of an authority gap in organizations because they must rely on the managers of functional departments for human resource support. In a related study, Dunn (2001) researched job satisfaction in a matrix project environment from Herzberg's (1965) hygiene/motivation perspective, and found functional managers in control of hygiene factors while project managers controlled motivator factors. To bridge the authority gap,

project managers may adopt a human relations approach, building up social bonds and focusing on motivating functional managers and team members, or use an approach that emphasizes the legitimacy of the project manager's position. The second approach is fundamentally authoritarian and stressful, featuring tight control over the use of resources and accountability for performance to the project managers. Some stress is involved in the human relations technique as well, because the project manager must be sensitive toward the attitudes of functional department managers and not act in manner which would upset them. This can entail acceptance of incompetent project team members if their return to the functional department would generate disagreement or ill feeling (Hodgetts, 1968).

In another early article, Hammerton (1970) recognized the "ulcerating dilemma" (p. 51) of project managers' lack of authority over personnel in matrix-team environments, and argued for the adoption of advanced management techniques to address the interdisciplinary nature of professional-technological work. Stressors associated with matrix assignments include role ambiguity, role stress, and role overload (Knight, 1976). Assignment to project teams presents a professional discontinuity to matrix team members, who rely mainly upon their functional departments for recognition and career advancement, and the contrast and friction between functional departments and project managers has been identified as a major issue to be resolved. Butler (1973) explored the role of project managers in a matrix-team environment and reported on several sources of stress for managers and team members. Projects represent a challenge to the power and established methods for pursuing organizational goals practiced by functional departments. Departments may resist the project challenge by withholding or

bargaining for support, depending on the perceived power of the project manager. Project managers with recognized authority may be perceived as a threat to be bargained with by functional departments, while those with ambiguous authority may be ignored and have difficulty procuring resources from departments and become helplessly dependent upon them for success. Conflicts with functional managers over personnel are a symptom of role ambiguity, but the competition for resources within the matrix work environments is not limited to personnel.

Control of resources, including rewards, is another challenge related to cross-functional work arrangements. Based on survey research with research and development teams in nine large U.S. organizations, Katz and Allen (1985) found that most project team members believed their functional department managers exercised more control over monetary rewards and promotions than project managers. The few project teams in which the project manager was perceived to control rewards had higher performance levels. The situation points to a responsibility/authority role imbalance, a condition in which project managers may find they have insufficient resources to perform effectively. They are responsible for project success, but may have little authority over important resources needed to accomplish their goals. Gehring (2007) explored the validity of the traits theory of leadership to project management and noted three overarching environmental challenges faced by project managers. Project environments are temporary, providing only a limited time for managers to establish themselves. Projects are usually pursued with matrix team members who report directly to functional department managers, violating unity of command. And, team members may have professional and work goals that are disparate, hindering team formation. As was the

case with many stressors identified in the burnout literature, challenges to project managers are often interconnected. The matrix management environment found in many project-centric firms results in role stress for project managers, as does the boundary-spanning aspect of the project manager's position.

The boundary-spanning role of project managers is well documented in the literature, especially through the attention given to managing project stakeholders. Bryde (2008) described the boundary-spanning role as one of an interface between the client as the project owner and the organization as the delivery agent. Lysonski, Nilakant and Wilemon (1989) noted that when project managers function as boundary spanners they are likely to experience both role stress and role ambiguity. Furthermore, because the boundary interactions often involve bargaining or competition for scare resources, additional stressful conflict can be a common result. Clients and the firm's leadership are always counted as stakeholders, but consideration must be given to many others as well. Bourne and Walker (2006) provided a succinct definition of stakeholders as "those who have an interest or rights of ownership in the project, and can influence, or be affected by, the outcome" (p. 6). Stakeholders exist within the project-owning organization, indeed within the project team itself, and in the external environment. Blackburn (2002) conducted qualitative research using the perspective of actor-network theory to explore the project manager's role as a central nexus drawing together and combining processes and actors in the organizational context. Project managers define, direct, and give meaning to project efforts, steering the activities of team members and interfacing with stakeholders external to the temporary project team. To achieve success, project managers must identify, communicate, and effectively manage relationships with

stakeholders (Emelander, 2010). Barker, Tjosvold, and Andrews (1988) described how the boundary spanning roles of project managers include both the external and internal environments. Because project teams are commonly composed of members from separate functional sub-organizations from within the firm, the project managers' boundary-spanning role starts with their own team. Stakeholder management is boundary spanning in action, and is identified as an essential, but very challenging, part of a project manager's position (Pant & Baroudi 2008).

Stakeholder management is demanding, and is often aimed a resolving ambiguities in the project manager's position. Achterkamp and Vos (2008) assessed the use of stakeholder terminology in the project management literature. Most articles that discuss stakeholders do not describe a methodology for determining who they are or how their influence can be enacted, both perceived shortfalls in stakeholder management. The identification of stakeholders is a key to successful project management, and failure to identify or interact with powerful stakeholder groups can cause projects to fail. Management of stakeholders, after they have been identified and assessed, is a challenging and potentially stress-inducing activity. Kutsch & Hall (2005) researched the hindrances encountered by project managers to succeeding with risk management. Risk management is a core task of project managers, and regarding risk as a taboo subject that could not be discussed with other stakeholders was observed to be an intervening condition preventing effective risk identification and handling. This communications failure in turn indicates a breakdown of a boundary spanning function. The fact that project managers are often incapable of discussing risk, a topic of importance to

stakeholders, including customers and the firm's executive management, is indicative of an ambiguity in relationships and a degree of conflict in determining priorities.

The ambiguity and role-uncertainty associated with stakeholder management was assessed in other articles as well. Through case-study research, Bourne and Walker (2006) concluded that stakeholder management is an essential component of project managers' capability to adequately tap into the power relationships within firms. The fact that power relationships (i.e. politics) must be taken into account when managing projects implies an ambiguous role and the potential for conflict and stress. Newcombe (2003) described numerous perspectives and techniques that can be employed for stakeholder identification and assessment. Assessment of stakeholders in two dimensions, power and predictability, can help project managers estimate the way stakeholder power might be applied towards a project. Project managers essentially undertake the boundary-spanning role of stakeholder management in order to tend to the power environment in which projects are often embedded. Because project managers are often in ambiguous positions with tentative support, stakeholder management is a necessary strategic skill. One class of stakeholder, the firm's executive management, is singled out as an important and often problematic variable in the project manager's work environment.

Executive support for projects, including sponsorship and assumption of the role of project champion, are important but often lacking elements backing project success. Whittaker (1999) investigated the cause for information technology project failure, reporting results that were related to workplace stress factors identified in the burnout literature. The top three causes for information technology project failure were poor

planning, a weak business case, and lack of support by the firm's top managers. Of the three, lack of managerial support is also cited as a cause of workplace stress in the burnout literature, and its third-place ranking indicates the problem is common. Lack of executive-level support has also been linked to lower motivation in project management teams. Schmid and Adams (2008) conducted quantitative survey research to assess project managers' perceived ability to influence their team's motivation. The absence of top management support and personal conflicts between team members were identified as the most important factors lowering motivation. The difference between how project managers conceive their role and the perception of top managers is one factor associated with poor support.

Crawford's (2000) review of the research literature found little correlation between project manager technical competencies and supervisor's perceptions of effectiveness. The findings called into question the widespread use of competency standards as a means for increasing project success rates. In a related study, Crawford's (2005) research found no relationship between project manager formal body of knowledge competencies and executives' perceptions of project management capabilities. This finding identified a discontinuity between the project management discipline's approach to building professional skills and the attributes favored by executive managers. The result could be stressful ambiguity and role conflict for project managers who must decide between professional standards and the firm's way of doing business. The research also indicated that senior executives resist project manager involvement in linking project outcomes to the firm's strategic goals, and in determining what a project's goals should be in the first place. This situation is a potential stressor related to executive

support, and is in contrast to current thinking about integrating project value propositions with project portfolio management.

One reason that executive support is required concerns the competition for scarce resources within the organization. By definition, project management work is pursued in a resource-constrained environment. The reason for this is that project-based firms, in theory, determine which project will yield the most benefit and allocate the resources necessary for its accomplishment. The next most beneficial project is then resourced, and so forth until the firm's resources are fully committed. When any project, encountering real-world circumstances, requires an increase or adjustment to its resources, it creates a shortage for all. Bourne and Walker (2006) wrote about the need to acquire organizational support by influencing important managers in the organization. Politics, as much as a project's business case, can be a decisive factor in resource allocation, and discovering hidden agendas, if possible, is a part of the support building process. Bryde (2008) reported that sponsor involvement is a critical support factor for projects, a necessary element throughout the project's lifecycle. As project management becomes more widely used as a baseline business method, the re-orientation of organizational processes and resources to meet project management needs is also becoming recognized as an area of concern. Johns' (1999) research found that project managers experience stress when firms commit to a project but subsequently fail to follow-up with resources to get the work done. Also, competing interests and non-cooperation among executive managers isolates project teams, bringing their role in the firm into question.

Integrating many of the stress factors identified so far, Gällstedt (2003) made an exploration of sources of stress and their affect on project managers and team members.

Significant sources of stress, including resource constraints, work overload, and role stress, originating from both the internal and external environments, were identified. As expected, uncertainty was also a major stress factor. Stress and motivation were observed to vary over time, from phase to phase, as projects progress. The research recommendations included an endorsement of future study of stress related to project work. Richmond & Skitmore (2006) found that control of resources, technological uncertainty, workload, and conflicting priorities were significant stress factors for project managers. Boundary spanning was also identified as a substantial stress related role and social networks were noted as a significant stress-handling condition.

Another stress factor that might be identified for project managers, but one not included in the major burnout literature categories, is change. Projects are a vehicle for introducing change, and the project environment itself constantly varies (Bourne & Walker, 2006; Huemann, Keegan, & Turner, 2007). Project managers are called upon to adapt to this environment, adjusting the technical approach of the project, balancing resources, and managing stakeholder expectations (Anderson, 1992; Newcombe, 2003). Pinto and Prescott's (1988) research built upon previous work that hypothesized ten critical support factors for projects. Their research confirmed the importance of the critical success factors to project managers but found that the factors varied in importance during different phases of the project life cycle process. Skills which adequately addressed one project phase might not be appropriate for the next, raising an uncertainty issue not encountered in more traditional and routine management environments. The uncertainty associated with change can be a source of worry to other project team members as well (Gällstedt, 2003). While the reviewed stress/burnout literature did not

identify change as a primary stressor, the change management literature cites change as a source of stress (Price & Chahal, 2006), fear (Kotter & Schlesinger, 2008), and resistance (Atkinson, 2005; Ford & Ford, 2009). Given that change is a regular component of the project manager's experience, it seems that the distressing emotions and behaviors they encounter could be the similar to those described in the change management literature.

Summary of Project Manager Stress Literature Review Section

The purpose of this section of the literature review was to assess whether the project management literature identified environmental stress factors similar to those described in scholarly burnout articles. In summary, the literature does identify significant environmental stress conditions encountered by project managers. Each of the identified project management stressors, including work overload, organizational policies, role stress, boundary spanning, and weak managerial support, were also described in the burnout literature. Incessant change, another potentially stressful environmental factor, is also associated with project management. The next section of the literature review addresses a more positive aspect of the work environment and how it can meet the basic intrinsic needs of workers.

Self-Determination Theory

Self-determination theory is a framework of constructs describing human needs and motivations that includes several sets of dimensions and sub-theories. Although the core contention of the theory, that persons are innately motivated to fulfill three universal needs, can be succinctly expressed the theory also addresses the dynamic interplay between individuals and the environment. In positing the existence and influence of three intrinsic needs, self-determination theory articulates a perspective of potential

development and growth. The theory holds that the formation of motivation results from an organismic, rather than mechanical or segmented, process (Deci, 1976). The organismic perspective of self-determination theory views persons as active and self-organizing (Deci, Eghrari, Patrick, & Leone, 1994), and trending toward development of an integrated concept of self in thought and action (Ryan & Deci, 2000). General systems theory (von Bertalanffy, 1950) is another well-known organismic theory that shares several important concepts with self-determination theory, including feedback, equifinality, and interaction between component processes. From an organismic perspective, humans are consciously interested in acting to expand their capabilities and develop inner processes and structures capable of interacting with, and shaping, their environment. The motivation for this interaction is needs fulfillment (Ryan & Deci, 2002). The needs identified by self-determination theory are posited to be universal, and their fulfillment in the workplace is connected to multiple variables including the nature of the work itself, individual dispositions, and the social context (Baard, Deci & Ryan, 2004). Self-determination theory also identifies a desired condition for persons.

The successful fulfillment of the three intrinsic needs identified by self-determination theory leads to the healthy development and fully effective functioning of persons. Healthy development includes the integration of environmental constraints and opportunities with a sense of one's own capabilities and needs (Deci & Ryan, 2000). The person's organismic processes interact with the social context, which influences the degree and quality of self-development. The quality and strength of social interactions experienced by persons affects the degree of integration of their personal characteristics with the environment. In turn, people can affect their environment as well as being

influenced by it. The benefits derived from fulfillment of intrinsic needs are full functionality and psychological well-being (Deci et al., 2001) leading to the development of a fully healthy, functional, integrated personality. Full development is an optimum state, one that is susceptible to numerous distracting and maladaptive influences.

While self-development theory describes the potential for the development of psychological health and functionality, it does not suggest achievement of this status is automatic or a panacea. The development of an innate capability for control and decision making, termed regulation in the self-determination theory framework, is an ongoing issue in life (Ryan & Deci, 2000). The organisimic development of an integrated self, including self-regulation, depends on both the attributes of the individual and a supportive environment. One of the great challenges identified by self-determination theory is the development, from childhood onward, of internal regulations which govern the expenditure of energy towards desired goals (Ryan & Deci). The integrated individual finds fulfillment through the satisfaction of intrinsic needs, essentially an expression of their autonomy. Frustrated satisfaction of needs produces dissatisfaction and can lead to maladaptive behavior (Sheldon, Ryan, & Reis, 1996). Self-determination theory contrasts intrinsic, self-determined motivation with two other classes of motivated behavior: controlled and amotivational (Deci, Eghrari, Patrick, & Leone, 1994). Controlled motivation is that which is extrinsically forced upon individuals and is coercive in nature, while amotivation occurs when persons fail to form intention, leading to pointless behavior or despondency (Deci & Ryan, 2000). The self-determination theory framework accounts for an array of individual and environmental influences to describe needs, motivation, and wellness.

In to build a coherent cognitive framework, self-determination theory draws together strands of psychoanalytic and behavioral theory from different perspectives and attempts to establish a common basis of understanding and integration between them (Ryan & Deci, 2002). The dimensions that comprise self-determination theory include three innate needs, the types of motivation that arise from interactions between persons and the environment, and personal dispositions that influence behavior. A total of five sub-theories are included in the self-determination theory framework, and depending on the interests of researchers, any of them can form a basis for study. The purposes of this section of the literature review are to provide a description of the self-determination framework and its component theories, assess the research literature that relates self-determination theory to personal and workplace outcomes, and describe the relationship of self-determination theory to the burnout construct. Self-determination theory is wholly described by its five component sub-theories, including basic psychological needs theory, cognitive evaluation theory, organismic integration theory, causality orientations theory, and goal contents theory. The intrinsic needs that are central to self-determination theory and their relationship to well-being are described by the basic psychological needs theory.

Basic Psychological Needs Theory

The basic psychological needs theory holds that three universal and innate needs comprise the foundation for intrinsic motivation. These needs, autonomy, relatedness, and competence, are the products of evolution and universal in nature, and their fulfillment forms the basis for the full human development, characterized in self-determination theory as well-being and full functionality (Figure 4). The concept of well-

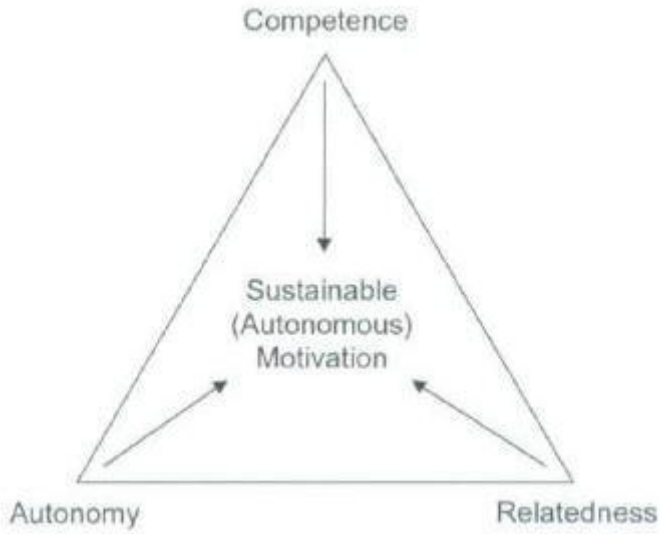

Figure 4. The foundation of sustainable (autonomous) motivation. From "Beyond talk: Creating autonomous motivation through self-determination theory" by D. Stone, E. L. Deci & R. M. Ryan, 2009, *Journal of General Management, 34*, 336. Copyright 2009 by the Braybrooke Press. Reprinted with permission.

being includes a sense of self as capable, secure, and possessing an integrated set of values and priorities (Deci & Ryan, 2000). Self-determination theory distinguishes between needs and desires. Fulfillment of needs contributes to individuals' growth and health, while mere desire fulfillment lacks these qualities (Baard, Deci, & Ryan, 2004). Extrinsic rewards are in themselves considered to be desires, but they can be instrumental in answering needs. Of the three intrinsic needs, autonomy is a lynchpin, occupying a central position in the self-determination theory construct.

Autonomy relates to a person's volition, the desire to be self-organizing and to pursue activities that are rewarding and match one's integrated self-image (Deci & Ryan, 2000). Pursuing such activities entails the acceptance, support, and self-agreement with one's own actions (Chirkov, Ryan, Kim, & Kaplan, 2003), attributes that are disrupted by forced or externally induced behavior. The need for autonomy, in essence, represents the fundamental organizing principle common to all living things, and is so thought to be an adaptive evolutionary product in humans (Deci & Ryan, 2000). In the self-determination theory framework, the central role of autonomy arises from its empowerment of intrinsic motivation. While satisfaction of the needs for competence and relatedness may be enough to motivate externally controlled behavior, the need for autonomy demands internal control and direction, conditions which are necessary for true intrinsic motivation (Gagne, 2003).

Autonomy is also the self-determination theory dimension most prone to misinterpretation. Autonomy is often equated with independence, but the two concepts are not synonymous. Satisfaction of the need to be self-directing is not the same as independent or selfish behavior (Ryan & Deci, 2000) because individuals can, of their

own choice, be involved in supportive, dependent relationships that also support their need for autonomy (Chirkov, Ryan, Kim, & Kaplan, 2003; Deci et al., 2001). Autonomy concerns freedom of decision, indicated by the willingness to stand by one's decisions (Chirkov, Ryan, Kim and Kaplan), while independence refers to freedom from reliance on others for support or guidance. In self-determination theory parlance the opposite of autonomy is control (Deci, Connell, & Ryan, 1989), while the opposite of independence may be considered to be dependence and/or interdependence. These conditions overlap and interact; for instance, a person may experience both autonomy and dependence if they willing to trust and rely on others in healthy, supportive relationships.

Research on the need for autonomy and its universality has supported its role as described by self-determination theory. Deci, Eghrari, Patrick and Leone's (1994) laboratory research explored the attitudes of subjects performing a boring task and found that increased internalization of the need for performance occurred when instructors presented the task in a manner that supported the performer's autonomy. Specific supporting behaviors included (a) providing a meaningful rationale, (b) acknowledging the worker's perspective, and (c) conveying choice rather than control. The research found a significant relationship between the degree of social support and intrinsic motivation, which in turn was associated with beneficial workplace outcomes and personal fulfillment. Chirkov, Ryan, Kim and Kaplan (2003) researched college student's perceptions of relative autonomy and well-being in four different national cultural contexts. The results were consistent with self-determination theory's assertion that autonomy is positively related to perceptions of well-being and that the expression of autonomy, acting in accordance with one's own beliefs, is a universal human concern.

Feelings of autonomy were the same for all student samples, despite environments that varied widely in the degree of independence or collective behavior that was the norm. Deci et al. (2001) assessed the universality of the self-determination theory constructs, including autonomy, by comparing the perceptions of Bulgarian and U.S. workers. The Bulgarian workers evidenced the same relationships to the three self-determination theory factors, as well as engagement and motivation, as U.S. workers. The results lent support to the universality of the innate needs identified as part of the self-determination theory construct. Of special note, the autonomy scores of the Bulgarian workers were higher than those of the U.S workers although the Bulgarian firms, state-owned enterprises, were thought to have a much more bureaucratic, directive management style. The higher level of autonomy reported by the Bulgarian workers is consistent with the self-determination theory position that supportive, interrelated environments should be conducive to feelings of autonomy. The results also emphasized the difference between autonomy and independence, two concepts that are sometimes confused in the literature. Research has shown that both supervisor behavior and the organizational climate can affect perceived needs.

The environment can influence what needs have priority. Deci, Connell and Ryan's research (1989) explored the effects of training first-line managers in self-determination methods on employee attitudes in an organization facing difficulties. The research was set in a company experiencing challenging business conditions, where employees feared their jobs might be lost. The results showed that workers cared more about extrinsic job concerns, like salary and retention, when these conditions appeared to be threatened, but their concern shifted to managerial style when the threats were

removed. The shift in priorities suggested a differentiation of needs similar to Maslow's (1943) hierarchy or Herzberg's dual factor theory of motivation (Herzberg, 1965). Work group members whose managers practiced autonomy-supportive behavior reported higher levels of job satisfaction and trust in the organization. The research indicated that training managers in self-determination enhancing methods, such as offering choice, giving honest feedback, and acknowledging employee perspectives (Stone, Deci, & Ryan, 2009) could have a lasting favorable effect on the work climate and employee attitudes. In addition to encouraging autonomy through supportive behavior, supervisors play a role in fulfilling the need for relatedness.

Relatedness is the social component of the three native needs identified by the basic needs theory. Fulfillment of the need for relatedness is answered by the motivation to be part of a community, to have a sense of belongingness with a group, and to develop mutually caring relationships with other individuals (Ryan & Deci, 2002). The trait of social coherence, of which relatedness is a manifestation, is an evolutionary adaptation exhibited in species ranging from one-celled organisms to the most complex life on earth (Deci & Ryan, 2000). A similar concept, the drive to bond component of Lawerence and Norhira's four drive theory, is identified as an evolutionary outcome of Paleolithic hunter-gather society (Lawrence & Norhria, 2002). In the workplace, relatedness concerns one's relationship with teams, departments, and organizations, and with informal networks and communities of practice. Baard, Deci, & Ryan's (2004) research, which included an assessment of all three self-determination theory needs in two workplaces, found that relatedness had the strongest relationship with employee performance scores.

The need for competence concerns feelings of efficacy in one's social interactions and having the opportunity to express one's capabilities (Ryan & Deci, 2002). Competence is the ability to influence outcomes (Stone, Deci, & Ryan, 2009), and is another fundamental, intrinsic evolutionary outcome (Deci & Ryan, 2000). It is fostered through success at optimally challenging tasks, trials at the limits of one's capabilities, which result in valued outcomes (Deci et al., 2001). Experimental results, including Deci's (1971) research on the motivation of students given the task of solving puzzles, have verified competence as a motivating factor. In Deci's research, students who received verbal reinforcement of their competence sustained higher levels of motivation. Research into needs and motivation satisfaction among Bulgarian and U.S. workers found similar relationships to the need for competence despite the sample's cultural differences (Deci et al., 2001). The results supported the universality and importance of perceptions of competence. The significance of perceived competence to motivation also finds support in other theories, such as cognitive evaluation theory (Bandura, 1977) and the four drive theory of motivation (Lawrence and Norhira, 2002). Kasser, Davey and Ryan (1992) researched the relationship between satisfaction of the intrinsic needs identified by self-determination theory, including competence, and work performance among psychiatric patients participating in a vocational training program. The patients who reported greater satisfaction of their needs also recorded higher motivation, readiness for employment, and time on the job as reported by both themselves and their supervisors.

Research has supported the self-determination theory proposition that fulfillment of the three basic needs supports well-being and functionality. Sheldon, Ryan and Reis

(1996, p. 1270) researched the characteristics of a "good day," days in which persons' fundamental psychological needs were met, considering both the characteristics of individuals and the attributes of the day. The research participants' personal orientations towards autonomy and competence were assessed using two standard survey instruments and a record of their daily impressions recorded in self-administered checklists and diary entries. The findings included overall significant positive relationships between the exercise of autonomy and competence with total well-being and vitality, and reverse relationships between needs fulfillment and negative feelings. Also, individuals who scored higher in autonomy and competence traits tended to have better days than those scoring lower in those personal attributes. Vansteenkiste et al. (2007) researched the relationships between intrinsic and extrinsic orientation to work goals and well-being outcomes in a pair of studies. In the first, drawing from a representative national sample of Belgian workers, they found that an orientation towards intrinsic goals was positively related to well-being, while an extrinsic orientation resulted in lower levels of happiness and satisfaction both on and off work. Income was unrelated to the level of extrinsic satisfaction, contrary to expectations that higher income would lead to greater satisfaction and perhaps relieve the pressure associated with focusing on achieving extrinsic rewards (Deci, Eghrari, Patrick, & Leone, 1994). The second study's results replicated those previously obtained, with additional findings that an extrinsic work orientation was related to increased emotional exhaustion, conflict between home life and work, and short-lived satisfaction at work.

The three needs are posited to be universal and elemental, not the products of more basic psychological needs. Self-determination theory holds that the manner of their

fulfillment is important, with autonomy playing an essential role. The degree to which persons exercise autonomy when answering their needs for competence and relatedness determines the extent to which they are self-motivated (Gagne & Deci, 2005). The relationship between motivation and needs fulfillment is explained in more detail by cognitive evaluation theory.

Cognitive Evaluation Theory

Cognitive evaluation theory grew out of experimental observations in an effort to explain how extrinsic rewards affect intrinsic motivation. At the time of the theory's conceptualization intrinsically motivated behavior was simply thought to be that performed for no obvious external reward. Early research related to self-determination theory supported recognition that different psychological processes can underlie apparent intrinsically motivated behavior (Deci, 1976). Deci's (1971) early laboratory research concerned the interplay between intrinsic and extrinsic motivation, and found that extrinsic motivation erodes intrinsic motivation. The experiment involved two groups of students solving puzzle tasks taken from a commercial game in three separate sessions. The experimental group was paid for successful completion of each puzzle during the second session only, while the control group received no extrinsic reward. In the third session, the experimental group spent significantly less time on the puzzle task before becoming bored, indicating that the extrinsic monetary reward had displaced their intrinsic interest in the challenge of the puzzle task. The control group, however, maintained a fairly steady level of interest, displaying the highest amount of effort on the task during the third session. Similar results were obtained by Calder and Straw (1975), who found that students paid for completing puzzles experienced a decrease in intrinsic

motivation. Volunteer participants were assigned to two sets of jigsaw puzzles, one blank and the other with an interesting picture. Those working on the blank, more tedious puzzles reported an increase in motivation and time spent on the task when they were rewarded with $1. The other students recorded lower satisfaction and interest when they were paid for solving the interesting picture puzzles, indicating that an extrinsic reward had superseded their intrinsic interest in the task.

The deterioration of intrinsic motivation is thought be related to feelings of lost autonomy. Extrinsic rewards cause a change in the perception of autonomy because the locus of causality shifts from an internal source to an external one, reducing feelings of self-ownership of the motivation (Deci, 1976; Deci, & Ryan 1985). Perceived competence also plays an important part in the sustainment of intrinsic motivation. Information about competence is obtained through the social environment, including peer and supervisor feedback (Gagne & Deci, 2005). Supportive informational feedback enhances cognition of competence, supporting realization of that intrinsic need. These two considerations, control and informational feedback, are part of all external rewards and together influence the degree of intrinsic motivation (Deci, 1976). An important implication from cognitive evaluation theory is that the two types of motivation, intrinsic and extrinsic, do not automatically combine for greater effect. Previous research and theory dealing with motivation, such as Herzberg's, and Porter and Lawler's models, had treated the two types of motivation as additive (Gagne & Deci, 2005). According to cognitive evaluation theory, external motivation can displace internal drive, and the degree of intrinsic satisfaction from rewards depends on the balance between informational and controlling influences (Deci, Koestner, & Ryan, 1999). Informational

influences allow persons to retain a sense of autonomy in their actions, while controlling influences displace autonomy and intrinsic satisfaction. The interaction between control and autonomy on intrinsic motivation predicted by cognitive evaluation theory has found support in research.

The previously mentioned early experimental research by Deci (1971) and Calder and Straw (1976) assessed the effects of monetary and verbal rewards on intrinsic motivation. The results suggested that extrinsic monetary rewards weaken intrinsic motivation and result in lower overall motivation when removed. Verbal rewards, however, did not effect intrinsic motivation. The results supported a model holding that external monetary rewards shift the perceived locus of control from intrinsic autonomous motivation to external controlled motivation. While these early experiments provided a foundation for the later development of cognitive evaluation theory, more recent experimental and field research has also supported the theory.

In research by Houlfort, Koestner, Joussemet, Nantel-Vivier and Lekes (2002), college students performing a puzzle-solving task were given either informational or controlling feedback from monitors and provided either automatic or performance-contingent rewards. The informational feedback was found to be significantly related to affective autonomy, feelings that the subjects were acting of their own volition, and perceptions of competence. Competence and decisional autonomy, whether subjects felt they could choose to proceed or stop, also correlated significantly with intrinsic interest in the task. Contingent rewards, thought to shift the locus of motivation from self to the reward giver, resulted in significantly lower levels of affective autonomy. A complimentary study was performed with school children, with a reward (decorative

pencil) either provided without announcement at the end of a puzzle-task, or made contingent on performance. The findings replicated those of the earlier research, with subjects reporting higher levels of affective autonomy in the unexpected-reward condition. Another study assessed the influence of extrinsic rewards on school children who pursued an activity that gave they found rewarding – helping others (Fabes, Fultz, Eisenberg, May-Plumlee, & Christopher, 1989). Persons tend make an either/or decision concerning intrinsic and extrinsic motives, and acceptance of an extrinsic reward displaces intrinsic motivation. An extrinsic reward was given to the school children for the previously internally motivated behavior, displacing their intrinsic drive. When the rewards stopped, the students also ended their engagement in the activity, indicating that their intrinsic motivation had deteriorated.

Deci, Koestner and Ryan (1999) performed a meta-analysis, including 137 studies, to analyze the relationship between contingent rewards and intrinsic motivation, interpreted from a cognitive evaluation theory perspective. The review considered five types of contingent rewards including task-contingent, task-noncontingent, performance-contingent, completion-contingent, and engagement-contingent that were hypothesized to result in differing degrees of intrinsic motivation. Contingent rewards that are controlling (task, performance, and completion) were posited to be detrimental to intrinsic motivation, while those with an informational component (task, performance) theoretically presented a balance between external and internal motivation. The assessment strongly affirmed the cognitive evaluation theory's position, with the results from the analyzed studies matching their projected position on an external/internal motivation spectrum. Gagne (2003) conducted two studies to research the relationship

between an autonomy-supportive environment, personal causality orientations, and intrinsic motivation. In the first, students whose parents exhibited autonomy-supportive behavior reported greater need satisfaction, engagement, and likelihood to participate in prosocial behavior. Those students with an autonomy casual orientation also scored higher on those beneficial measures. The second study assessed similar measures among volunteer workers at an animal shelter and included turnover intention and hours worked as metrics of motivation. Work autonomy support was unrelated to the number of hours worked, but autonomy orientation, a personal disposition characteristic, was significantly related to job engagement.

Organismic Integration Theory

Intrinsically motivated behavior involves two general categories of cognition: assessment of the degree of challenge or interest for the doer, and an evaluation of congruity between the behavior and internal values. Together, these two factors result in persons seeking out and attempting challenges to meet expectations or resolve internal incongruities (Deci, 1976). Intrinsically motivated activities are those that individuals find enjoyable for their own sake and would engage in spontaneously. In contrast, extrinsic motivation arises from external sources, including reward or punishment, for performing tasks that have no native interest or value.

An important development which recognized the two types of motivation in the workplace was Herzberg's motivation/hygiene model of satisfaction (Herzberg, 1965). In that dual-reward theory, extrinsic rewards such as pay were found to only be related to dissatisfaction with work, meaning the provision of external motivation factors could only eliminate reasons to be unhappy with a job, bringing employees to a neutral status.

Those extrinsic motivation aspects of jobs, found to mainly be concerned with avoiding discomfort (Herzberg, Mathapao, Wiener, & Wiesen, 1974), were labeled hygiene or maintenance factors. Intrinsic motivation was found to be necessary to go beyond merely not having reasons to be dissatisfied with work to actual engagement and enthusiasm. Hygiene/motivation theory drew from earlier concepts, such as Maslow's (1943) proposition that individuals have an intrinsic drive towards self-development (Herzberg, 1965). Lawler and Porter's model (Lawler, 1969) combined the expectancy-performance-valence aspects of Vroom's model and Herzberg's two motivational types along with equity theory (Lawler, 1970) to develop a more comprehensive view of motivation. It recognized that workplace variables, such as the quality of feedback, expectation of success, and attractiveness of outcomes could influence motivation and satisfaction. These earlier theories, however, did not explore in detail how the interactions between work conditions and an employee's internal processes might result in either intrinsic or extrinsic motivation. Self-determination theory's conceptualization of intrinsic motivation is more developed and nuanced than the earlier models. Each of the earlier conceptualizations regarded intrinsic and extrinsic motivation as relatively dichotomous factors, whereas the organismic integration theory posits that they exist on a continuum.

Organismic integration theory describes different types of motivation and how the environmental context can promote or hinder integration of the locus of control, or regulation, for motivation and the resulting behavior. From the organismic integration theory perspective motivations are differentiated by the degree to which they are intrinsically or extrinsically controlled and valued (i.e. type of regulation), and all

motivations exist on a continuum according to the degree to which they are internally or externally regulated (Figure 5). At one end of the continuum is amotivation, a condition of apathy or discouragement resulting in lack of purposeful intention to act (Ryan & Deci, 2000). Amotivation results from a cognition of incompetence, helplessness and deprivation, that circumstances are beyond one s control, and that effort will not yield results (Cresswell & Eklund, 2005; Deci, & Ryan, 2000). Because there is no motivation and no resulting purposeful behavior, regulation, either internal or external, is also lacking. Motivation with a locus of regulation that is perceived to be entirely non-intrinsic, and toward which no personal interest is directed, is identified as externally regulated.

External regulation is a well-established motivational concept. It is central to Skinner's model of operant conditioning (Baucum, 2008; Deci, Koestner, & Ryan, 1999; Skinner, 1963). Vroom's expectancy theory (1964) also established the importance of external, contingent rewards, as a primary motivator at work (Graen, 1969). Including activities that the performing individual finds boring or even unpleasant, the motivation for externally regulated behavior is dependent upon contingent rewards or coercion (Gagne & Deci, 2005). The locus of control and regulation for this type of motivation is entirely outside the self, and the rewards, while possibly instrumental for achieving outcomes of true value, have little or no intrinsic meaning. Moving across the intrinsic/extrinsic continuum towards motivation which persons can form some degree of internal identification introduces the self-determination theory concept of introjection.

The next category of motivation, introjected regulation, is distinguished by a sufficient degree of internal identification to allow the motivation to be sustained by the

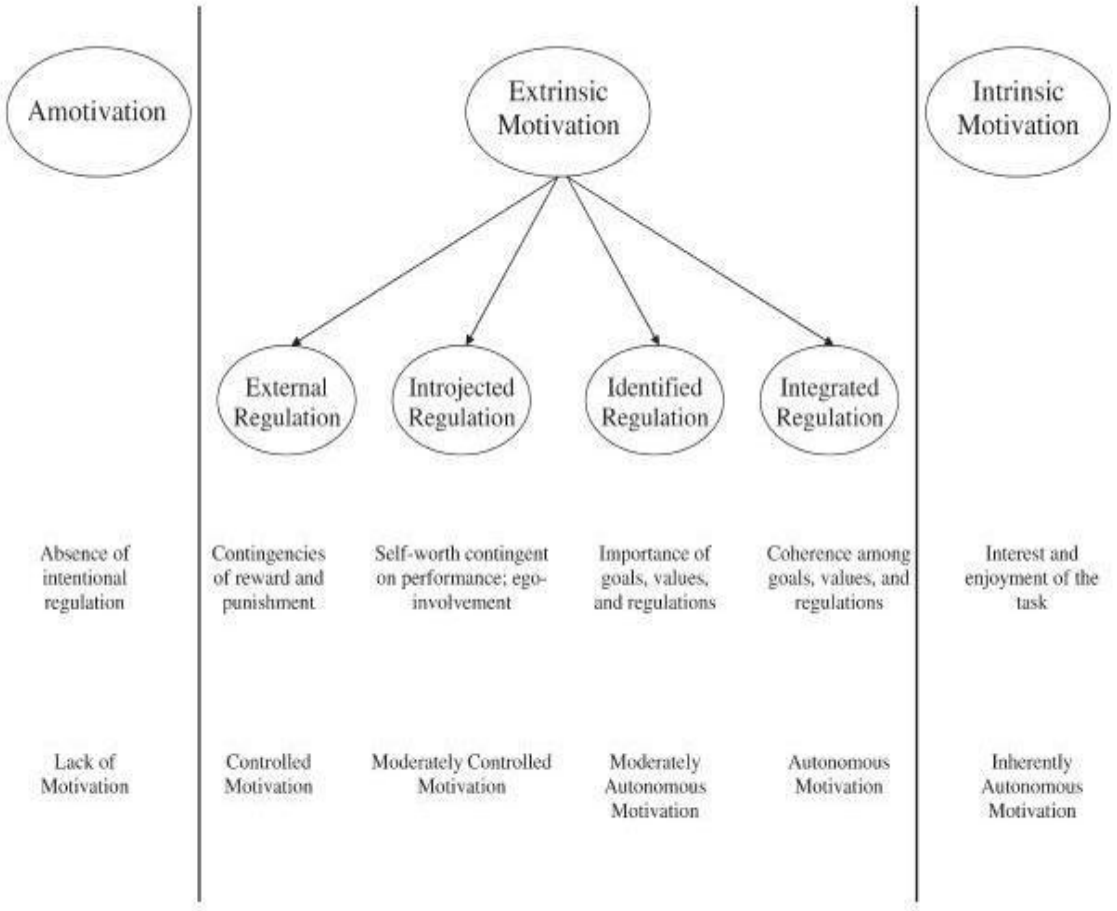

Figure 5. The self-determination continuum showing amotivation. From "Self-determination theory and work motivation" by M. Gagne & E. Deci, 2005, *Journal of Organizational Behavior, 26,* 336. Copyright 2008 by John Wiley & Sons, Ltd. Reprinted with permission.

individual without continual external influence. Introjection in self-determination theory refers to the adoption of external regulations that have no intrinsic merit so that the individual is self-controlling, and no longer wholly dependent on external contingent rewards (Stone, Deci, & Ryan, 2009). Punishments such as guilt, or inducements such as self-approval and ego-boosting, are examples of introjected regulations (Deci, Eghrari, Patrick, & Leone, 1994). Introjected regulations offer no intrinsic motivational value to the holder, and are characterized by inner doubt, tension and self-conflict (Stone, Deci, & Ryan, 2009). The motivation for introjected action, similar to externally regulated behavior, is still fundamentally coercive in nature (Vansteenkiste, Lens, & Deci, 2006), with controls that have been internalized. The regulations, such as contingent approval, still derive from the external environment and, even though they have been have been taken in by a person, they are not truly internalized or integrated. The next category of regulation takes integration a step further by introducing personal interest in the goal of behavior.

Identified and integrated regulations, the next categories on the control/value continuum, include a higher degree of self-identification and autonomy. Consideration of integrated regulation highlights an important distinction of external motivation: instrumentality. All externally motivated drives and behaviors share the characteristic of being potential means or instruments towards some other goal (Meyer & Gagne, 2008). Identified regulation is distinguished by a higher degree of personal autonomy, enabled by recognition that the object of motivation has some intrinsic value. While persons acting from a basis of identified motivation exhibit greater self-direction and personally value the activity's goal, the goal may not be congruent with their other values

(Vallerand, & Ratelle, 2002). Integrated regulation is a status wherein the holder recognizes and values the object of the motivation as something supportive of personal values. The performer is not intrinsically interested in the activity for its own sake, but values it as a means to important ends (Gagne & Deci, 2005). It is "integrated" in the sense of the performer identifying the activity as important to their sense of self-development and its compatibility with other values. Ryan and Deci (2000) provide the example of a student performing homework, not because they enjoy the effort but because they value the outcome for their chosen career, as an example of integrated regulation. In self-determination theory, integrated regulation is the most advanced, developmental form of external motivation (Chirkov, Ryan, Kim, & Kaplan, 2003), sharing many characteristics with true intrinsic motivation.

Intrinsic motivation, from the self-determination theory perspective, is differentiated in some respects from the internal motivation described in other psychological theories. Self-determination posits that true intrinsic motivation includes two sub-factors; attraction and integration. Addition of the element of attraction elevates an activity governed by integrated regulation to true intrinsic motivation. Attraction results from an activity that causes desirable outcomes, including elements such as interest, enjoyment and satisfaction (Stone, Deci, & Ryan, 2009). Integration means that the behavior is harmonious with a person's sense of self, including their values and needs (Vansteenkiste, Lens, & Deci, 2006). Intrinsically regulated activities include all the factors that differentiated the more developed extrinsic regulations, including autonomy (introjected regulation), values (identified regulation), and congruence (integrated regulation).

The relationship between physical exercise and motivation has been an area of application of organismic integration theory. Exercise makes a good area for research because of the interplay between desired outcomes and either enjoyment or discomfort with physical activity. Edmunds, Ntoumanis, and Duda (2006) surveyed respondents from a variety of exercise-related settings and found positive relationships between intrinsic motivation and sustained exercise behavior. Extrinsic motivation, on the other hand, was negatively associated with strenuous exercise in the research sample. Of interest, the most internalized form of motivation, intrinsic motivation, was not found to be a predictor of exercise behavior. An implication was that while few people may find the act of strenuous physical exercise interesting in itself, the more intrinsic categories of external motivation (introjected and identified) are still significant in influencing exercise behavior by producing a positive self-image and alignment with valued goals. Similarly, Ntoumanis (2005) found that more internalized motivation was positively correlated with participation in an optional school physical education program and negatively related to bad feelings about exercise classes and lack of participation in the program.

Causality Orientations Theory

The other two self-determination theory sub-theories are the causality orientations theory and goal contents theory. Causality orientations theory explains how individual personality characteristics interact with the environmental context to produce behavior, motivation, and experiences (Ryan & Deci, 2002). The theory describes three fundamental personality characteristics and holds that persons tend to orient their behavior towards environments supporting those characteristics. The environments are posited to exist on a continuum from autonomy-supportive to control-supportive (Deci et

al., 2001), and the three causality orientations are types are autonomy, controlled, and impersonal, characteristics that are measured via the General Causality Orientations Scale (Ryan & Deci, 2002). An autonomy orientation regulates behavior on the basis of self-approved values and personal satisfaction, while the control orientation focuses on extrinsic "rewards, gains, and approval" (Self Determination Theory, n.d.). The third orientation, impersonal, relates to amotivation and involves a focus on external control combined with a sense of personal inefficacy, resulting in feelings of helplessness and anxiety (Soenens, Berzonsky, Vansteenkiste, Beyers, & Goossens, 2005).

The reviewed literature included studies supporting causality orientations theory. In exploratory research, Soenens et al. (2005) established a connection between causality orientations theory and identity style development according to the model described by Berzonsky (1989, 1990). Berzonsky proposed that persons develop a self-myth describing their place within the environment, a conceptualization that takes into account both their physical characteristics and the perceived social and physical features of their worlds. Soenens et al.'s research results confirmed a relationship between pairs of causality orientations and identity types, suggesting that the way persons regulate their behavior influences the manner in which they construct an identity. Identity type, in turn, is related the kinds of challenges and range of activities persons are willing to undertake (Soenens et al., p. 437). As previously mentioned, Gagne (2003) found that an autonomy causality orientation was related to positive engagement for students who participated in voluntary prosocial activities and job satisfaction for volunteers at an animal shelter. The autonomy-oriented students also reported greater general needs satisfaction. Fernet, Guay, and Senécal (2004) studied the interrelationships between job control, job

demands, personal orientations towards autonomy or control, and burnout. Thus, the research combined components of the burnout model, which holds that demands can lead to exhaustion, and self-determination theory, which accounts for individual dispositions towards control or autonomy, and autonomy (job control) as an intrinsic motivator in the work environment. The findings indicated a relationship between job control, a personal disposition towards self-determination, and lower levels of burnout, in both high and low job demands environments. Individuals with a lower disposition towards self-determination were not so fortunate. They experienced higher levels of burnout as demands rose regardless of the degree of control they could exert over the work environment. The final theory within the self-determination theory framework addresses the connections between wellness, motivation, and needs satisfaction.

Goal Contents Theory

Goal contents theory is concerned with the relationship between motivational goals and satisfaction of needs. Extrinsic goals, such as image, financial success, or popularity are associated with low needs satisfaction and personal wellness, while attainment of intrinsic goals such as meaningful relationships, membership in a community, and personal growth contribute more to needs satisfaction (Self Determination Theory, n.d.). Research supporting goal contents theory includes two studies involving university students. Kasser and Ryan (1996) assessed the intrinsic/extrinsic goal alignment of two samples of university students and found a relationship between intrinsic motivation and well-being, and between extrinsic motivation and ill-being, narcissism, and lower self-actualization. Another study assessed university students one year after graduation and found support for goal content

theory's precepts (Niemiec, Ryan, & Deci, 2009). In that research, students who were oriented towards intrinsic goals had higher well-being scores than those who were oriented towards extrinsic rewards. The students who focused on extrinsic rewards also had lower measured well-being and higher ill-being. Each student group was more successful in attaining the type of goal upon which they focused.

Section Summary and Comparison of Self-Determination Theory to Burnout

In summary, this section of the literature review assessed the self-determination framework's five sub-theories and explored how they provide a complete blueprint of its logic and interpretation of motivation. Basic needs theory identifies the three intrinsic needs, and cognitive evaluation theory assesses the environmental factors influencing whether actions provide extrinsic or intrinsic satisfaction. Organismic integration theory analyzes the status of regulations governing intrinsic/extrinsic motivation, and causality orientations theory describes individual tendencies towards control or autonomy. Finally, goal contents theory accounts for whole-life outcomes in terms of the satisfaction and well-being resulting from intrinsic goal attainment. The scope of these theories shows that self-determination theory is considerably more than a dry, predictive model of stimulus inputs and behavioral outputs. There is a normative aspect to self-determination theory's description of an optimal human condition, that when provided the proper support persons can achieve well-being and full functionality. The potential for well-being and functionality stands in stark contrast to the distress and exhaustion of burnout as described by the literature.

The literature describes some conceptual and experiential similarities between the burnout dimensions and self-determination theory's intrinsic needs. One of the three

burnout dimensions, efficacy, can be directly compared to the self-determination theory need for competence. Efficacy is defined as a person's "ability to exercise successful influence over their environment" in the burnout literature (Hobfoll, 2002, p. 309), and competence is called the "ability to influence important outcomes" in the self-determination theory literature (Stone, Deci, & Ryan, 2009, p. 77). The two literatures often use the words competence and efficacy interchangeably to describe the two concepts.

The literature also indicated an association between the burnout concept of depersonalization and the self-determination theory need for relatedness. Depersonalization is defined as an effort by those suffering burnout to "distance themselves emotionally" from others (Maslach, 2003, 190), while relatedness is the "desire to feel connected to others" (Deci & Ryan, 2000, p. 231). Based on these descriptions, the burnout dimension of depersonalization would seem to be a consequence that is antithetical to the self-determination theory intrinsic need for relatedness. The more generalized burnout dimension of cynicism, directed at work content rather than persons, does not carry the same direct descriptive relationship to relatedness. It is possible, however, to think that a generally cynical attitude in the workplace might be directed towards both work content and persons.

The final pair of constructs, exhaustion and autonomy, also have an antithetical relationship. Descriptions of exhaustion in the burnout literature include terms such as "frustrated, hopeless, trapped, helpless, depressed, sad, and apathetic" (Chauhan, 2009, p. 413), whereas, autonomy in the self-determination theory literature is associated with empowerment (Stone, Deci, & Ryan, 2009), enthusiasm (Pierce, Lydon, & Yang, 2001),

and the belief that one is the source of their own actions (Ryan & Deci, 2002). An outcome of fulfillment of the intrinsic needs is vitality (Deci & Ryan, 2000), an opposite to exhaustion. The descriptive and conceptual relationships between the burnout model and self-determination theory establishes a basis for research that includes both perspectives, and some recent research has included both burnout and self-determination theory elements.

Recent studies have included both burnout and self-determination theory perspectives, building on the perceived relationship between the constructs. As already mentioned, Vansteenkiste et al.'s, (2007) second research study found an inverse relationship between fulfillment of intrinsic needs and emotional exhaustion. More specifically, the results showed a significant negative correlation between exhaustion and an intrinsic work value orientation. Exhaustion was also negatively related to job satisfaction and vitality, and positively related to work-family conflict. An extrinsic work value orientation was found to be positively related to emotional exhaustion. Rubino, Luksyte, Perry and Volpone's (2009) research evaluated the relationship between stress and motivation from the perspectives of job demands-resources theory and self-determination theory. They theorized that role ambiguity contributes to cognition of external control, which would decrease autonomy and intrinsic motivation. Also, energy expended in information gathering would not contribute to professional growth, further reducing intrinsic motivation. Decreased intrinsic motivation was hypothesized to diminish emotional resources, such as enthusiasm and perseverance, increasing the potential for exhaustion. The study's findings included a mediating role for intrinsic

motivation between role ambiguity and ineffectiveness, consistent with their speculations.

Van den Broeck, Vansteenkiste, De Witte and Lens (2008) found that a satisfaction of needs as described by self-determination theory partially mediated the relationships between job demands/resources and burnout/engagement. The authors theorized that satisfaction of intrinsic needs could provide the motivational link between job resources and engagement with work. The satisfaction of needs, then, could be a useful perspective for job design, with burnout/engagement added to other organizational development considerations such as work climate, leadership, and rewards. Another study, Baucum's (2008) doctoral research, included an assessment of the relationship between engagement, considered to be the antipode of burnout (Leiter & Maslach, 2001), and intrinsic motivation as defined by self-determination theory, among Baptist pastors. Using a reverse-scaled Maslach Burnout Inventory – Human Services Survey and the Basic Needs Satisfaction at Work instrument, a strong correlation was found between engagement and intrinsic needs satisfaction. Each of the dimensions of intrinsic motivation also correlated significantly to measured work satisfaction. Although engagement, not burnout was measured, the use of the same instruments widely used to measure burnout and intrinsic motivation, as well as the strength of obtained results reinforced the validity of the research.

The relationship between burnout and intrinsic motivation in professional athletes has also been studied. Cresswell and Eklund (2005) used an Athlete Burnout Questionnaire to measure dimensions similar to those of Maslach Burnout Inventory – General Survey and the Sport Motivation Scale to measure intrinsic/extrinsic motivation

among professional athletes. Using canonical correlation to assess the burnout and self-determination theory dimensions, the researchers found that low intrinsic motivation was associated with a reduced sense of accomplishment and lower evaluation of their sport. Amotivation, as defined by self-determination theory, was also associated with higher burnout scores. Another study of professional athletes also found significant correlations between intrinsic need fulfillment and burnout (Lonsdale, Hodge, & Rose, 2009). Satisfaction of the basic needs identified by self-determination theory was negatively related to burnout scores, while controlling forms of motivation (external control and introjection) were positively correlated with all measures of burnout. A significant finding of this more comprehensive research was that both the interest and value congruence components of intrinsic motivation among athletes were associated with lower levels of burnout.

Literature Review Summary

The purpose of the literature review was to establish the rationale for the research from several perspectives, including the burnout model, characteristics of the project management work environment, and the self-determination theory construct of needs fulfillment and motivation. Using a risk assessment approach, the review analyzed the incidence and severity of burnout in the workplace, finding that by both measures burnout is a topic worthy of study. Next, the burnout literature was reviewed to assess the conditions commonly identified with burnout, factors such as organizational policies, work overload, supervisor support, and role stress. The burnout literature was then reviewed to ascertain what consequences of burnout were described. Significant consequences affecting the job and persons were identified, including absenteeism,

dissatisfaction, and reduced enthusiasm, all directly affecting work performance. Personal consequences such as illness, insomnia, and increased family conflict were also noted. Having established a basis of importance, causes, and effects in the burnout literature, the focus of the literature review then shifted to consider project managers.

The reviewed literature suggested that burnout could be a relevant research perspective for assessing the project management environment. The reviewed articles established the importance of project management in business operations and identified project managers as the key persons influencing project outcomes. Next, a literature review of project management working conditions found matches with burnout antecedent conditions in several areas. Some of the matches, such as organizational policies, work overload and supervisor support, were explicitly identified as stressors in the project management literature. Others, such as boundary spanning and role stress, were identified through an emphasis on certain aspects of project managers' position and work environment. The importance of continual change, a ubiquitous condition in project management, was also noted for its potential as a stress-inducing factor. Altogether, the reviewed literature supported a proposal that project management is both important and stressful enough to merit burnout research. The third literature review section identified the relevance of self-determination theory to the research.

The self-determination theory literature was assessed and found to establish the framework's general importance to organizations and individuals, along with some specific links to burnout. The self-determination theory framework was explored through an assessment of its constituent sub-theories. The basic need satisfaction theory described the importance and universality of the three intrinsic needs: autonomy,

relatedness, and competence. Cognitive evaluation theory detailed the importance of placing the source for motivation within individuals to achieve autonomy and intrinsic motivation. Organismic integration theory explained how regulation of motivation can be internally or externally centered by means of the individual's identification of values, congruence, and autonomy, with resulting degrees of intrinsic or extrinsic motivation. Causality orientations theory described how individual dispositions towards control, autonomy, or amotivation interact with environmental contingencies to reinforce or disrupt tendencies to develop self-regulation and needs fulfillment. Goal contents theory set forth how intrinsic or extrinsic goals can contribute or detract from satisfaction of innate needs. All the theories are placed in a general organismic setting of persons naturally striving to achieve their full potential of well-being and functionality. In organizations, benefits from intrinsic needs satisfaction include the potential for engagement, satisfaction, and vitality. The intrinsic needs described by self-determination theory were then compared and contrasted with the dimensions of burnout, establishing a basis for research using the perspectives of both for the assessment of project managers.

CHAPTER 3. METHODOLOGY

Introduction

This chapter describes the methodology used in a study to assess whether a sample of project managers experienced burnout and, if so, whether a correlation could be detected between burnout and intrinsic needs fulfillment. The chapter begins with a review of the research purpose, questions, and hypotheses, and progresses to a discussion of the study's design and method. Technical aspects of the research, including a description of the population, survey instruments, variables, and data analysis procedures are also provided. The chapter concludes with an assessment of ethical considerations involved with the research.

Research Purpose, Questions, and Hypotheses

The purpose of the research was to assess if project managers experience burnout and to explore the relationship between project manager perceptions of burnout and fulfillment of needs described by self-determination theory, including consideration of demographic factors. The study also tested for correlations between the three burnout dimensions (emotional exhaustion, cynicism, and reduced effectiveness) and the three intrinsic needs identified by self-determination theory (autonomy, relatedness, and competency).

Research Questions

As previously stated, the research questions for the study were determined to be as follows:

Research Question 1: Do project managers experience significant levels of burnout?

Research Question 2: Is the work environment's satisfaction of intrinsic needs related to burnout level among project managers?

Research Question 3: Are the self-determination theory sub-factors (autonomy, relatedness, and competency) related to sub-factors of burnout/engagement (exhaustion, cynicism, and inefficacy) in the work environment?

Research Question 4: Are demographic factors related to burnout levels at work?

Research Question 5: Are demographic factors related to intrinsic need satisfaction?

Research Question 6: Do demographic factors moderate the relationship between burnout and intrinsic need satisfaction?

Hypotheses for the Study

H10: Project managers will report no burnout in the workplace.

H1a: Project managers will report burnout in the workplace.

H20: Project managers' overall intrinsic needs fulfillment and burnout scores will exhibit no significant correlation.

H2a: Project managers' overall intrinsic needs fulfillment and burnout scores will exhibit a significant negative correlation.

H30: Project managers' sub-scores on the self-determination theory dimension of autonomy will exhibit no correlation with the burnout syndrome dimension of exhaustion.

H3a: Project managers' sub-scores on the self-determination theory dimension of autonomy will be negatively related to the burnout syndrome dimension of exhaustion.

H40: Project managers' sub-scores on the self-determination theory dimension of relatedness will exhibit no correlation with the burnout syndrome dimension of cynicism.

H4a: Project managers' sub-scores on the self-determination theory dimension of relatedness will be negatively related to the burnout dimension of cynicism.

H50: Project managers' sub-scores on the self-determination theory dimension of competency will exhibit no correlation with the burnout syndrome dimension of reduced effectiveness.

H5a: Project managers' sub-scores on the self-determination theory dimension of competency will be negatively related to the burnout syndrome dimension of reduced effectiveness.

H60: Project manager demographic factors such as gender, race, age, marital status, education, and experience will have relationship to the levels of burnout in the workplace.

H6a: Project manager demographic factors such as gender, race, age, marital status, education, and experience are related to the levels of burnout in the workplace.

H70: Project manager demographic factors such as gender, race, age, marital status, education, and experience will have no relationship to the levels of intrinsic needs satisfaction in the workplace.

H7a: Project manager demographic factors such as gender, race, age, marital status, education, and experience are related to the levels of intrinsic needs satisfaction in the workplace.

H80: Project manager demographic factors such as gender, race, age, marital status, education, and experience will not moderate the relationship between the overall level of burnout and intrinsic needs satisfaction.

H8a: Project manager demographic factors, such as gender, race, age, marital status, education, and experience will moderate (change the strength or direction of) the relationship between the overall level of burnout and intrinsic needs satisfaction.

Research Design

The determination of a research design depends on consideration of numerous factors, including observation, the literature, existing models and theories, and the utility of desired outcomes (Swanson & Holton, 2005). This research was a correlational study of descriptive design (Cooper & Schindler, 2008; Trochim, 2006). The descriptive design aspect included gathering and assessing stress, intrinsic motivation, and demographic information from a sample population. The correlational element consisted of an assessment of workplace burnout with intrinsic needs fulfillment. The research methodology included a quantitative approach using a one-shot, cross-sectional survey with close-ended questions. This methodology is consistent with the study's purpose and the general use of the survey technique (Fowler, 2009). The descriptive element of the survey design results from a lack of previous burnout research with project managers as a sample population. The burnout-stress level data obtained from the sample can, however, be compared to levels recorded for samples of other populations, providing descriptive information.

The correlational approach was warranted because the quantitative, descriptive data returned from the burnout and intrinsic motivation surveys were suitable for

comparison. The overall quantitative descriptive and correlational designs are also supported by a sufficient degree of previous model and theory development (Creswell, 2009). The measurement of burnout dimensions of stress was validated during the exploratory "pioneering" phase of investigation of the burnout syndrome (Maslach, Schaufeli, & Leiter, 2001; Bakker, Demerouti, & Schaufeli, 2002). That phase of burnout research established the validity of the helping professions burnout model consisting of the three dimensions of emotional exhaustion, depersonalization, and inefficacy, and resulted in the completion of the Maslach Burnout Inventory – Human Services Survey. The model was extended from environments centered on people-helping professions to more generalized work settings with the introduction of the Maslach Burnout Inventory – General Survey. The level of development of self-determination theory, including the basic needs satisfaction theory, also supports quantitative research. Like burnout, self-determination theory has been supported by empirical observation, both in the laboratory and in organizations (Deci, Connell, & Ryan, 1989). The measurement of intrinsic needs satisfaction is specifically supported by the Basic Needs Satisfaction at Work instrument. Altogether, the established theories, well-defined variables, and comparison of factors desired for the research supported a quantitative approach (Creswell, 2009).

The quantitative approach was also warranted by the nature of the research questions to be assessed. The research concerns assessment of a sizeable population of project managers who are associated with a project management consulting firm. Quantitative surveys are suited for gathering information from large numbers of respondents (Coughlan, Cronin, & Ryan, 2009; Groves, 2006), an important

consideration supporting statistical power in characterizing populations. Under favorable conditions survey research may also be rapidly accomplished (Marrelli, 2004), a noteworthy factor for limiting bias by gathering information under similar circumstances. The use of standardized questions in self-administered surveys, when the instruments are proven and suit the research purpose, also limits the potential for bias introduced by researcher influence (Fowler, 2009). The resources required for survey research can also be relatively low (Coughlan, Cronin, & Ryan, 2009; Umbach, 2004), making this form of research accessible for individual researchers.

Target Population and Sample Selection

The target population for the study was the project management associates of a diversified international project management consulting company, termed *Project Management Firm* in this manuscript. The Project Management Firm works with a wide variety of customers, from Fortune 500 business to small companies, in an array of industries. Its business focuses include organizational change, business transformation projects, and establishment of project management office capabilities. The firm's Chief Executive Officer informed the researcher that its associate project manager database includes over 16,000 persons. The breadth of the firm's operational environment resembles that of the project management discipline in general, contributing to the external validity of the research. A precedent of Project Management Firm's participation in scholarly research efforts was established in 2006, when the firm supported Al-Husseini's doctoral study of the relationship between project manager leadership styles and perceived success (Al-Husseini, 2006). At that time Al-Husseini reported that the Project Management Firm maintained a database of approximately 6,000

project managers. The sample for the this study was selected from the population of mostly likely current, active project managers using a random number generation process, the RANDBETWEEN function in Microsoft Excel.

Survey Instruments

The Maslach Burnout Inventory – General Survey derives from the original Maslach Burnout Inventory, and has a well-documented and credible history of use. The original survey was published in 1981, following several years of observation of the burnout syndrome among workers in social-service settings. Because the burnout syndrome was first noted in the service and helping occupations the orientation of the survey was specialized towards those work environment (Bakker, Demerouti, & Schaufeli, 2002), with questions that focused on experiences involving interactions between service providers and their clients, patients, or constituents. The Maslach Burnout inventory originally consisted of 47 questions, subsequently reduced to 25 based on the results of confirmatory factor analysis (Maslach, Jackson, & Leiter, 1996). The samples used to assess the validity and reliably of the instrument included 1025 respondents from at least 11 different professional populations (Maslach & Jackson, 1981). The Maslach Burnout Inventory has withstood the rigors of scrutiny well over its history, and is acknowledged as the most widely-accepted measure of burnout stress (Burke & Greenglass, 1995; Cordes, Dougherty, & Blum, 1997) and is the "gold standard" for research in the area (Bres, Salanova, & Schaufeli, 2007 p. 461). Reflecting the maturation of the burnout construct, the Maslach Burnout Inventory has been modified to suit different work environments.

Recognition that burnout occurs in work environments other than those originally studied resulted in modification of the Maslach Burnout Inventory for wider use (Bakker, Demerouti, & Schaufeli, 2002; Kitaoka-Higashiguchi et al., 2004). In 1996 two additional variants of the Maslach Burnout Inventory were introduced, the Maslach Burnout Inventory –Educators Survey, and the Maslach Burnout Inventory – General Survey, and the original survey was designated the Maslach Burnout Inventory – Human Services Survey (Maslach & Leiter, 2008). The Educator Survey's questions were adapted to teacher-student relationships, but the survey's scales measure the same constructs, emotional exhaustion, depersonalization, and personal accomplishment, as the original survey. The General Survey's questions were modified to reflect a task-centered rather than a person-centered work environment, and the scales measure the more generalized constructs of exhaustion, cynicism, and efficacy (Bres, Salanova, & Schaufeli, 2007) which parallel the original dimensions (Maslach, Jackson, & Leiter, 1996). Maslach, Jackson and Leiter (1997) described the burnout focus of the General Survey as a crisis with work rather than relationships with the persons at work. The reliability and validity of the General Survey is supported by the results of numerous research efforts (Ahola et al., 2000; Bakker, Demerouti, & Schaufeli, 2002; Kitaoka-Higashiguchi et al., 2004) and the use of the survey was appropriate for this research because project management work is carried out in a more generalized work setting.

Though the Maslach Burnout Inventory continues to be the instrument of choice for assessing burnout, the literature includes some discussion of the validity of its constructs and reliability of some questions. The personal effectiveness/efficacy dimension of the burnout construct has been a continual item of discussion (Schaufeli &

Salanova, 2007) and recent research questions its relationship to burnout and the way its scale is worded. The efficacy scale in the Maslach Burnout Inventory – General Survey is positively worded, but is meant to measure the sense of a loss of personal effectiveness at work. The problem with using a positive scale (efficacy) to measure a negative affect (inefficacy) is that the two do not necessarily match. For instance, a lack of happiness does not imply sadness; persons can be in a neutral state experiencing neither feeling. Research carried out to measure whether the burnout construct should include a scale measuring either efficacy or inefficacy (Bres, Salanova, & Schaufeli, 2007) found that a scale reworded to measure inefficacy had stronger correlations to the other burnout dimensions. The results of related research by Schaufeli and Salanova (2007) again found that inefficacy related more strongly to the other two burnout dimensions. The findings also indicated that efficacy was a component of an extended engagement construct, along with vigor, dedication, and absorption. Schaufeli, Taris and van Rhenen's (2008) research into the relationship between engagement, burnout, and workaholism demonstrated the three could be measured as different conceptual constructs. In that study, burnout and engagement correlated strongly in opposite directions on five variables describing environmental and personal characteristics, providing evidence that they are opposite constructs. Efficacy was related most strongly to work engagement, suggesting that it is more properly is a dimension of that construct rather than burnout.

The reliability of some of the Maslach Burnout Inventory's questions has also been a topic of discussion and analysis in the literature. Some research has found that questions from the depersonalization scale of the original Maslach Burnout Inventory

loaded on other constructs. Densten (2001) conducted research to assess the internal and construct validity of the Maslach Burnout Inventory and found that the scales used to measure the emotional exhaustion and personal accomplishment constructs in fact measured two aspects of the constructs. The resulting groups of sub-factor questions had poor internal reliability, indicating an inadequacy in the scales. The depersonalization scale, in contrast, was uni-dimensional. Overall, a four-factor model fit the research data better than the Maslach Burnout Inventory's three-factor model. Three questions (12, 13, and 14) from the personal accomplishment scale double-loaded on two constructs, and the double-loading of item 12 had been noted in other studies. Byrne (1994) also noted the cross loading of item 12, and Richardsen and Martinussen (2004) found better fit to the three-dimension burnout model with questions 12 and 16 removed. Maslach, Jackson and Leiter (1996) acknowledged researcher's experiences with questions 12 and 16, and recommended that those items be omitted from analysis such as casual modeling, but be retained for calculation of scale means. This study did not pursue causal modeling or other statistical analyses that are more sensitive to the factor structure of the Maslach Burnout Inventory, and all items in every scale were retained and used.

The research involved administering the Maslach Burnout Inventory – General Survey and the Basic Needs Satisfaction at Work instruments to a sample population of project managers. The Maslach Burnout Inventory – General Survey was selected from the three available Maslach Burnout Inventory instruments because the project management work environment matches the non-person-centric circumstances that are most appropriate for that instrument (Maslach, Jackson, & Leiter, 1996). The instrument consists of three scales which measure emotional exhaustion, cynicism, and reduced

efficacy, dimensions analogous to those measured by the other two Maslach Burnout Inventories (the Human Services Survey and the Educators Survey). The questions in all three in three instruments are similarly constructed, consisting of seven-point Likert response items that ask respondents how often an aspect of one of the burnout dimensions has been experienced. The General Survey uses a reduced set of 16 items compared to the Human Services Survey's and Educators Survey's 25 items. While information is provided by the instrument's authors on high, medium and low scores for various professional groups who were assessed using the Human Services Survey, only mean and standard deviation scores from some professions and a recommended categorization of scores is available for the General Survey (Maslach, Jackson, & Leiter, 1996). The General Survey has demonstrated similar correlations between dimensions as stability as the Human Services Survey in a variety of studies in different national and professional contexts. Taris, Schreurs and Schaufeli (1999) measured Cronbach's alphas in two samples, N = 179 and 284, and determined values of .87 and .86 for emotional exhaustion, .74 and .72 for cynicism, and .69 and .73 for professional efficacy. Kitaoka-Higashiguchi et al. (2004) assessed a larger sample (N=691) and determined values of .85 for emotional exhaustion, .81 for cynicism, and .87 for professional efficacy. The three-factor validity of the burnout syndrome measured with the General Survey was confirmed in both studies

The Basic Needs Satisfaction at Work instrument, used to assess fulfillment of the intrinsic needs described by self-determination theory, is also suitable for general work conditions, including those of project managers. The instrument was developed by Edward L. Deci and Richard M. Ryan, the two primary authors and researchers of self-

determination theory, and their colleagues (Baucum, 2008). The instrument consists of 21 items, seven measuring autonomy, six for competence, and eight directed toward relatedness. Each item asks respondents to respond to a seven point Likert-type scale that asks the degree to which a statement about work is true or untrue. The Basic Needs Satisfaction at Work instrument has been used in multiple studies to assess the level of intrinsic motivation in the workplace (Baard, Deci, & Ryan, 2004; Baucum, 2008; Deci et al., 2001; Ntoumanis, 2005). Baird, Deci, and Ryan (2004) reported that the instrument's scales demonstrated a Cronbach's alpha of .87 to .90. In the study by Ntoumanis (2005), confirmatory factor analysis revealed a poor fit of some questions in each scale. The negatively worded, reverse-scaled items were removed from consideration in order to raise the internal validity of the scales. An internal reliability assessment of the instrument was performed as a part of the descriptive statistical analysis of the research data. The Basic Needs Satisfaction at Work is an instrument designed specifically to measure fulfillment of intrinsic needs in the workplace and was the instrument of choice for the research. The University of Rochester self-determination theory Web site (Self-determination theory, n.d.) grants permission for use of the instrument and for its modification to fit the needs of researchers.

The burnout levels recorded from the sample were compared to standard scores recorded for other populations to provide an assessment of overall project manager stress levels. The scores from both survey instruments were compared to provide an assessment of the relationship between burnout and the level of intrinsic motivation and needs satisfaction. Moderating factors such as the age of the respondents, race,

education level, marital status, gender and work experience were also assessed to determine their effect on the relationship between burnout and intrinsic motivation.

Study Variables

The primary research variables of interest were the overall and individual factor scores for burnout and needs satisfaction. The overall scores (i.e. average sub-scores for each of the three component dimensions) scores on the Maslach Burnout Inventory – General Survey and the Basic Needs Satisfaction at Work instruments were analyzed to determine if there was a correlation. The three components of intrinsic motivation described by self-determination theory – autonomy, relatedness, and competency – were assessed as independent variables with the overall burnout score generated of the Maslach Burnout Inventory, represented by the exhaustion dimension, using regression analysis. The three intrinsic motivation factors were regressed against the individual burnout model dimensions of exhaustion, cynicism, and inefficacy to determine the strength of relationship between those component elements. The research also assessed the effect of demographic variables on burnout and motivation.

The first section of the survey instrument contained the demographic questions. Respondents were asked to choose an answer that included the demographic value applicable to them. The demographic section included questions about gender, ethnicity, race, age, marital status, education, and work experience. The ethnicity/race questions were formed in accordance with the guidance from the U.S. Department of Education National Center for Educational Statistics (n.d.). A moderated multiple regression (MMR) analysis was also conducted to determine whether a relationship exists between demographic factors and overall motivation and burnout.

The research was descriptive in nature, and no cause-and-effect relationship between variables was established or asserted. As a result, each of the dimensions measured by the burnout and intrinsic motivation instruments could be considered independent variables. In many studies using the Maslach Burnout Inventory or the Basic Needs Satisfaction at Work instruments the dimensions of each respective model are treated as independent variables compared to another factor of interest such as job satisfaction or turnover intention. The perspective applied in those instances that stress or motivation is the independent environmental consideration related to a dependent affective or cognitive factor. To assess the moderating effect of demographic variables, intrinsic needs satisfaction assumed the role of an independent, predictor variable and burnout a dependent variable for the purpose of data analysis.

Data Collection

The researcher invited several hundred randomly selected project managers to participate in the survey though an email from an executive-level individual in the Project Management Firm's project management office. The initial email included an introductory note with a link to the Web site that included an informed consent form and the survey instrument. The informed consent form explained the purpose of the research, gave an assurance of privacy, and identified how long the survey would take. The form also contained a hyperlink to the survey, and participants were required select the link, acknowledging acceptance of the survey conditions, in order to proceed to the survey form. The survey was open for two weeks, starting on the date the first email note was sent to potential respondents. A follow-up email was sent one week after the initial note and a final note sent six days after the follow-up. The raw data from the survey was then

downloaded into Microsoft Excel for descriptive analysis and then coded and transferred into the Statistical Package for the Social Science (SPSS, 16.0) for inferential analysis.

Data Analysis

The focus of the research was to assess whether project managers experience burnout and whether a relationship exists between burnout and intrinsic motivation, represented by the fulfillment of basic needs, in project managers. The data handling process included transcription of the survey data into Microsoft Excel for descriptive statistical assessment. Descriptive statistical analysis was performed on the test data, including calculation of means, modes, standard deviations, and standard deviations of the means to support assessment of the normality of the data and prepare it for inferential study. The use of descriptive techniques supported answering the first research question, an assessment of burnout levels among project managers. Following the initial descriptive assessment the research data was uploaded from Excel into the Statistical Package for Social Sciences (SPSS 16.0 for Windows) for inferential statistical analysis. The descriptive analysis also included a categorization of stress levels according to the scoring guidance for the Maslach Burnout Inventory – General Survey and the Golembiewski eight-phase burnout model (Richardson & Burke, 1995).

The relationship between burnout and intrinsic motivation was assessed by means of inferential multiple regression and correlation analysis. It was anticipated that the specific test would be Pearson's product-moment correlation coefficient. A multiple regression analysis was performed using each of the three component factors for burnout and intrinsic motivation to determine their relationship to combined burnout and intrinsic motivation scores. Correlation analysis was performed on each of the pairs of

burnout/intrinsic motivation dimensions of interest (exhaustion-autonomy; cynicism-relatedness; inefficacy-competence). The planned level of statistical significance for rejection of the null hypotheses was $\alpha = 0.05$.

A moderated multiple regression (MMR) was also performed to determine the degree to which the correlation between burnout and motivation was moderated by the demographic variables of gender, race, ethnicity, age, marital status, education, and work experience. Moderated multiple regression is a preferred technique for assessing the effect of moderating variables in correlational studies (Dawson & Richter, 2006). The assessment of demographic variables was accomplished by including each, one at a time, along with intrinsic motivation scores as a predictor of burnout.

Procedures

Following scientific merit review and acceptance by the School of Business and Technology at Capella University, the researcher applied for Institutional Review Board approval. A research site permission letter from the Project Management Firm was obtained, and during the School and Board review periods the coordination of administrative matters with the firm continued. After all needed approvals had been obtained, and the proposal oral review with a dissertation committee completed, the data collection phase of the research commenced. The research data was gathered by means of a self-administered survey, accessed online and hosted at Surveymonkey.com. SurveyMonkey.com is a popular, secure, survey-hosting site used widely used by organizations and individual researchers. The use of a self administered survey was consistent with the quantitative correlational approach that is central to the research design.

Ethical Considerations

Ethical concerns relating to the welfare of respondents are important issues in survey research. Two ethical challenge areas for surveys are protection of human subjects and abuse of results. Individuals or groups may be harmed by research – stereotyping is one example (International Statistical Institute, 2009). Researchers are obligated to use methods that will yield accurate results and to inform the public if results are misinterpreted or misrepresented (International Statistical Institute, 2009).

The Belmont Report (National Commission, 1979) stresses three overriding concerns for research involving human subjects: respect for participants, beneficence, and justice. For the current research these principles were be addressed through an informed consent process, how the survey was administered, and protection of data. Respect for persons in the context of the research included treatment of potential participants as freely autonomous agents. Provisions in the research addressing this concern included explicit acknowledgement of participant's freedom to choose to not participate and to stop at any time of the process. Beneficence includes efforts to both ensure the subject's well-being, and to prevent harm. For the study, benefice was addressed by ensuring the anonymity of responses, informing respondents of the purpose of the research, and offering a copy of the research manuscript when completed. Justice was assured by ensuring that participation was anonymous, with no harm accruing to those who choose not to participate, and that all who choose to participate could do so with no restrictions. Specific measures to ensure privacy included configuring Microsoft Windows for password protected access to the data files and disabling Internet Protocol (IP) tracking at

the survey website. An informed consent form that included the following information was presented to participants: identification of the principle researcher; title of the study; the research purpose; estimated time for respondents to complete the survey; how the collected data would be used; confidentiality of participation; and a description of the voluntary nature of participation, including options for withdrawing.

The protection of human subjects during research is the focus of the Institutional Review Board (IRB) process (Porter, 2005). Institutional Review Board protection includes the welfare, rights, privileges, and confidentiality of human subjects (Bronte-Tinkew, Allen, & Joyner, 2008). Internet-based research in particular is noted for potential vulnerable to privacy concerns (Umbach, 2004) and unwelcome "spamming" of survey requests (Coughlan, Cronin, & Ryan, 2009). Ethical research avoids compromising these areas to the maximum extent possible. A potential risk identified for participants was a mild discomfort that might be experienced at recalling stressful workplace incidents when responding to the survey questions. This discomfort was determined to be within the stress levels associated with the normal performance of work, and was addressed by advising participants, through the informed consent form, that they might withdraw at any time without penalty. The research proposal completed an Institutional Review Board process prior to proceeding. Electronic copies of research data and consent documentation are planned to be maintained in a password-protected personal computer owned by the main researcher for period of five years, after which time they will be destroyed. All received data was anonymous in nature, making the risk of a breach of privacy negligible.

The title of the dissertation was withheld from the informed consent form in order to reduce bias to the Maslach Burnout Inventory survey results. Some stigma can be attached to the burnout syndrome, and the survey's authors recommend omitting the word "burnout" when describing the survey purpose and title to participants (Maslach, Jackson, & Leiter, 1996). The omission of the word burnout from the research title did not increase the potential for harm to participants.

Expected Findings

It was expected that project managers would report measurable levels of burnout, and that overall intrinsic motivation (i.e. combined autonomy, relatedness and competency) would negatively related to overall burnout. It was also expected that autonomy would be the component most highly related to overall intrinsic motivation, and that pairs of burnout and intrinsic motivation sub-components (exhaustion-autonomy, cynicism-relatedness, and inefficacy-competence) would show the strongest relationships. It was also expected that demographic factors would be related to reported burnout and intrinsic needs fulfillment, and that the relationship between motivation and burnout would be moderated by demographic factors, although the direction of the relationships was not predicted.

Summary of Chapter

This chapter presented a summary of the research methodology for a study to assess the level of burnout and compare burnout levels to motivation in a sample of project managers. The research purpose, questions, and hypotheses were reviewed and related to the study design. The design included a descriptive-correlational approach that used a quantitative survey technique to address the research questions and hypotheses.

The survey strategy employed two demonstrated instruments, the Maslach Burnout Inventory – General Survey and the Basic Needs Satisfaction at Work, in a manner consistent with their previous use. The descriptive and inferential statistical techniques used to analyze the survey data were also well established and accepted for research of this type. The chapter concluded with an assessment of ethical considerations and risks, primarily including anonymity and mild discomfort, which related to the research. Overall, while the research explored new areas in several academic domains, including burnout, the project management discipline, and self-determination theory, the methodological process was straight-forward and followed well-established techniques and processes.

CHAPTER 4. DATA ANALYSIS

Introduction

The study investigated whether a sample of project managers experienced burnout, and if burnout was present, assessed the relationship between it and satisfaction of the intrinsic needs described by self-determination theory. The relationship between burnout, needs satisfaction, and demographic variables was also a topic of interest. Data collection was accomplished through a one-time cross-sectional survey of a random sample of project managers associated with a project management-consulting firm. The survey methodology included the use of two instruments, the Maslach Burnout Inventory – General Survey and the Basic Needs Satisfaction at Work. Seven demographic variables were also included in the survey. This chapter describes the results of the survey and provides an analysis of the data gathered from the sample.

Survey Administration

The survey was announced on November 2, 2010 by an electronic mail letter from a senior project manager at the sponsoring firm. The email was randomly sent to 806 respondents selected from the firm's database of active associate project managers. 95 of the initial invitations were returned as undeliverable and one invitee responded that they were now retired, resulting in a participant pool of 710. The survey was open for two weeks following the initial invitation; a follow-up email was sent from the researcher on the seventh day, and a final reminder and thank-you note sent on the day before the survey closed. At the end of the survey period 109 persons had participated, resulting in 102 usable survey cases for burnout and intrinsic needs factor analysis, a 14.4% response rate. Some respondents did not answer demographic questions concerning age, work

experience and ethnic/racial status, reducing the number of cases available for assessing hypothesis 6-8, as noted below. There were five individual instances of missing data in the burnout and needs fulfillment questions, treated as missing completely at random (Howell, 2009), and ignored for the computation of question and scale means. The number of responses supported a 95% percent confidence level with a 1.3% confidence interval as calculated by Creative Research Systems' Sample Size Calculator (Creative Research Systems, 2007). At the end of the response period the survey data were coded into and analyzed with Microsoft Excel and SPSS 16.0. A confidence level of $\alpha = .05$ was used for the data analysis.

Sample Demographic and Descriptive Analysis

Descriptive Analysis of Demographic Variables

The data was coded from the survey web site into Microsoft Excel for initial descriptive analysis. The statistical analysis capabilities of Excel, including sorting and calculation of means, modes, and standard deviations, was used to assess each of the burnout dimensions and intrinsic needs as well as the demographic attributes of the sample. The Excel calculations were also cross-referenced with the results from subsequent analysis using SPSS to ensure accuracy.

The gender distribution of the sample was quite balanced with 56.7% of the respondents reporting they were male and 43.3% female (Table 1). The mean age of survey respondents was 47.25 years with a standard deviation of 14.27 years. Table 2 shows the age distribution of the sample, with over 80% the respondents reporting their age was between 40 and 59 years old. The race and ethnicity responses indicated that the sample population was mostly White (82.35%) and non-Hispanic (96.94%). 3.06%

percent of respondents identified themselves as Hispanic, 7.84% said they were Black, and 2.94% Asian (Table 3 and Table 4).

Table 1. Project Manager Gender Frequencies

Gender	Frequency	Percentage
Male	58	56.68
Female	44	43.32

Table 2. Project Manager Age Frequencies

Age	Frequency	Percentage
20-29	3	2.94
30-39	14	13.73
40-49	30	29.41
50-59	43	42.16
60 and Over	12	11.76

Table 3. Project Manager Ethnic Frequencies

Ethnicity	Frequency	Percentage
Hispanic/Latino	3	3.06
Not Hispanic	95	96.94

Table 4. Project Manager Racial Frequencies

Race	Frequency	Percentage
American Indian or Alaska Native	1	0.98
Asian	3	2.94
Black	8	7.84
White	84	82.35
Other	6	5.88

A large majority of the respondents were married (75.53%), with 16.67% single and 9.8% divorced or separated (Table 5). The participating project managers were well educated, with 91.18% holding a bachelor's degree or above (Table 6). The bachelor's degree was the most common level of education attainment with 47.06% of respondents reporting it as their highest degree. The average reported work experience was 14.56 years (SD = 7.65), and 89.69% of the respondents had been in their position at least five years with the lowest reported work experience four years and the highest 35 years (Table 7).

Table 5. Project Manager Marital Status Frequencies

Marital Status	Frequency	Percentage
Single	17	16.67
Married	75	73.53
Divorced	9	8.82
Separated	1	0.98

Table 6. Project Manager Education Frequencies

Education	Frequency	Percentage
Trade or Vocational School	1	0.98
Some College	8	7.84
Bachelor's Degree	48	47.06
Master's Degree	42	41.18
Doctorate	2	1.96
Professional Degree	1	0.98

Table 7. Project Manager Work Experience Frequencies

Work Experience	Frequency	Percentage
0-5 Years	10	10.31
6-10 Years	29	29.90
11-15 Years	23	29.90
16-20 Years	18	18.56
21-25 Years	7	7.22
25-30 Years	5	5.15
Over 30 Years	5	5.15

Descriptive Analysis of Research Variables

The research variables included overall levels of burnout and intrinsic motivation as well as the three dimensions comprising burnout and the three intrinsic needs identified by self-determination theory. A first step in the analysis process was to reverse-code the results of the Maslach Burnout Inventory efficacy scale, converting it from a measure of efficacy to one of reduced efficacy consistent with the burnout model. Several of the questions in the Basic Needs Satisfaction at Work were also reverse-coded. A descriptive analysis was then made for each of the burnout and intrinsic needs satisfaction factors, and the mean, mode and standard deviation for each of the 16 items in the Maslach Burnout Inventory-General Survey are provided in Table 8. The scores were also categorized and rated according to criteria from the instrument's manual (Maslach, Jackson, & Leiter, 1996, p. 48), provided in Table 9. Table 10 lists the means,

standard deviations, and high, medium, and low score response frequencies for each burnout dimension. The mean scores for the burnout dimensions, found by adding the scores from the appropriate scales and dividing by the number of questions, were 12.09 for exhaustion (SD = 7.09), 9.75 for cynicism (SD = 6.63), and 6.47 for personal efficacy (SD = 4.98). The mean scores for exhaustion and cynicism fell into the middle of the moderate level of burnout respectively for those dimensions, while the mean score for reduced efficacy indicates a low level of burnout in that dimension. A Shaprio-Wilk analysis of the normalcy of the sample data indicated that it was not normal ($p < .05$) and that non-parametric tests would most suitable for inferential analysis of the individual burnout dimensions and intrinsic needs (Table 11).

Table 8. Descriptive Statistics for Maslach Burnout Inventory Items

Item	Mean	Mode	SD	Item	Mean	Mode	SD
1.	2.65	3.00	1.55	9.	1.98	1.00	1.78
2.	2.81	3.00	1.57	10.	0.68	0.00	0.92
3.	2.38	1.00	1.60	11.	1.49	1.00	1.55
4.	2.01	1.00	1.75	12.	1.46	1.00	1.23
5.	0.72	0.00	1.16	13.	2.39	1.00	1.91
6.	2.24	1.00	1.74	14.	1.88	1.00	1.64
7.	1.01	0.00	1.28	15.	1.53	1.00	1.46
8.	1.97	1.00	1.77	16.	1.12	1.00	1.19

Table 9. Burnout Dimensions Scoring Criteria*

Dimension	# Questions	High	Moderate	Low
Exhaustion	5	16 or over	8–15	0–7
Cynicism	5	13 or over	6–12	0–5
Reduced Efficacy	6	30 or over	24–29	0–23

*Categorized according to Maslach, Jackson and Leiter, 1996.

Table 10. Burnout Factors Mean Scores and Frequencies*

Factor	Mean	SD	Frequency High	Frequency Moderate	Frequency Low
Exhaustion	12.09	7.09	28	41	33
Cynicism	9.75	6.63	28	43	31
Reduced Efficacy	6.47	4.98	0	1	101

*Categorized according to Maslach, Jackson and Leiter, 1996.

Table 11. Shapiro-Wilk Analysis of Burnout and Intrinsic Needs Data

	Statistic	Sig.
1. Exhaustion	.954	.001
2. Cynicism	.953	.001
3. Reduced Efficacy	.923	.000
4. Autonomy	.942	.000
5. Competence	.937	.000
6. Relatedness	.951	.001

High burnout is characterized by high scores for exhaustion, cynicism, and reduced personal efficacy while moderate and low levels of burnout are characterized by scores in those ranges for each of the three dimensions. The sample's project managers reported different levels of burnout for each dimension: 27.45% reported high levels of exhaustion (over 16 points), and cynicism (over 13 points), and 99.02% felt they maintained a high level of efficacy in the workplace (i.e. low inefficacy). Nearly a third of the sample also reported low exhaustion and cynicism. Overall, more project managers reported moderate exhaustion and cynicism than the other levels, and the mean scores for both those burnout dimensions fell in that range.

The survey data were also analyzed according to the Golembiewski phase model of burnout. Golembiewski categorized burnout into eight progressive levels (Figure 2), with exhaustion and reduced efficacy the most meaningful dimensions. Table 13 provides the survey data results categorized according to the Golembiewski model. Because the model only rates the burnout dimensions into high/low levels, the moderate zone of the Maslach Burnout Inventory-General Survey was divided into upper and lower scores and added to the appropriate Golembiewski category. The sample's distribution, shown in Table 12, was characterized by groups in Level I (low exhaustion, cynicism, and reduced efficacy), Level V (high exhaustion, low cynicism and reduced efficacy) and Level VI (high exhaustion and cynicism, low reduced efficacy). Together, because they did not include high ratings of reduced efficacy, the sample project managers could be characterized as experiencing low and moderate burnout according to the Golembiewski

model. The data also indicated that project managers experience moderate levels of intrinsic needs satisfaction.

Table 12. Burnout Level According to Golembiewski Model

Level	I	II	III	IV	V	VI	VII	VIII	Total
Frequency	53				5	44			102
Percentage	51.96				4.90	43.14			100

Initial analysis of intrinsic needs fulfillment was accomplished by calculation of means, standard deviations, and frequencies of responses to questions and scales, and Table 13 lists the mean scores for each of the response items in the Basic Needs Satisfaction at Work instrument. The instructions for the Basic Needs Satisfaction at Work instrument do not include normative scoring ranges like those accompanying the Maslach Burnout Inventory, and the criteria used for this study categorized scores into high, moderate, and low ranges according to the percentage of possible points achieved as shown in Table 14. Table 15 shows the high, medium and low response frequencies, along with means and standard deviations, for each intrinsic need.

Table 13. Descriptive Statistics for Basic Needs Satisfaction at Work Items

Item	Mean	Mode	SD	Item	Mean	Mode	SD
1.	5.21	7.00	1.78	12.	5.10	5.00	1.49
2.	5.62	6.00	1.24	13.	4.29	6.00	1.78
3.	5.82*	7.00	1.70	14.	5.06*	6.00	1.77
4.	5.51	6.00	1.52	15.	4.89	4.00	1.40
5.	3.64*	4.00	1.72	16.	4.54*	4.00	1.58
6.	5.76	6.00	1.26	17.	5.02	6.00	1.60
7.	5.08*	4.00	1.55	18.	5.91*	6.00	1.07
8.	5.12	7.00	1.73	19.	5.94*	6.00	1.38
9.	4.52	5.00	1.63	20.	5.65*	6.00	1.57
10.	5.03	5.00	1.49	21.	5.56	6.00	1.26
11.	4.50*	6.00	1.78				

*Reverse Scored

Table 14. Intrinsic Needs Satisfaction Scoring Criteria

Need	# Questions	Low	Moderate	High
Autonomy	7	7 – 21	21.01 – 35	35.01 – 49
Competence	6	6 – 18	18.01 – 30	30.01 – 42
Relatedness	8	8 – 24	24.01 – 40	40.01 – 56

Table 15. Intrinsic Needs Mean Scores and Frequencies

Factor	Mean	SD	High	Moderate	Low
Autonomy	33.42	8.09	49	43	10
Competence	32.46	6.03	70	29	3
Relatedness	41.88	7.76	100	1	1

The survey data indicated the sample project managers mostly perceived moderate and high levels of autonomy, competence, and relatedness in the workplace. 90.20% of respondents reported high and moderate autonomy, the ability to pursue work in a manner of their choosing and influence work decisions. 97.06% indicated that they experienced high or moderate mastery over workplace tasks, and 98.03% indicated a high degree of relatedness with other workers. Contrasting with the burnout scores, few of the sample project managers reported the most undesirable levels of needs fulfillment: 9.8% experienced low autonomy, 2.9% low cynicism, and less than 1% low relatedness in their workplaces.

Inferential Analysis

Internal Reliability of Instrument Scales

An internal consistency analysis was performed on the scales measuring each burnout dimension (exhaustion, cynicism, and personal efficacy) and the three self-determination theory intrinsic needs (autonomy, competence, and relatedness). The results indicated high reliability for each of the scales, with Cronbach's Alpha scores ranging from .715 to .915, supporting the internal validity of the survey (Gliem & Gliem,

2003) and the burnout model and self-determination construct on which the research was based (Table 16). Internal consistency of some scales could have only been somewhat improved with removal of individual questions. For instance, disregarding question 13 of the Maslach Burnout Inventory would have raised the Cronbach's alpha score of the cynicism scale from .831 to .877. In order to maintain the integrity of the instruments, all burnout and intrinsic needs satisfaction questions were retained for analysis.

Table 16. Inter-Scale Reliability

Factor	Cronbach's Alpha
Exhaustion	.915
Cynicism	.831
Reduced Efficacy	.757
Autonomy	.800
Competence	.715
Relatedness	.851

Relationships between Construct Factors

A bivariate correlation analysis was performed separately for each pair of the six burnout and intrinsic needs factors and the Spearman correlation coefficients resulting from the analysis are provided in Table 17. The correlation coefficients range in absolute value between .270 (exhaustion-relatedness) and .613 (autonomy-competence). One value, less than .3 (exhaustion-relatedness) can be categorized as small, five with values

between .3 and .5 as moderate, and nine with values greater than .5 as large (Cohen, 1992; Hopkins, 2006). A term for representation of overall needs fulfillment, NeedFill, consisting of the sum of the needs fulfillment scores was also calculated and showed high (above R = .50) correlations with each of the other burnout and intrinsic needs factors. NeedFill's strong correlation with each of the intrinsic needs supported its use as a measure of overall needs fulfillment.

The determination of a measure of overall burnout included a variety of options. The literature makes cases for both using an overall measure (Baucum, 2008; Brenninkmeijer & Van Yperen, 2003) and for only assessing burnout by its individual dimensions (Maslach, Jackson, & Leiter, 1996). Exhaustion is regarded as the primary burnout dimension (Cordes, Dougherty, & Blum, 1997; Maslach, Schaufeli, & Leiter, 2001), arguing for its use as an overall measure. Exhaustion and cynicism together have been cited as the two main measures of burnout (Gaines & Jermier, 1983; Maslach & Leiter, 2008), and studies have found a significantly greater correlation between them than with reduced efficacy (R. T. Lee & Ashforth, 1996). All three dimensions have also been combined to measure overall burnout (Baucum, 2008; Burke & Greenglass, 1995). This study assessed burnout by its individual dimensions for correlation with intrinsic needs and analysis according to the Golembiewski model. Consistent with the rationale explained by Brenninkmeijer and Van Yperen (2003), an overall measure for comparison with demographic factors and overall needs fulfillment was also desired. Three overall burnout measures were explored: exhaustion, exhaustion and cynicism combined, and all three dimensions combined. A correlation analysis (Table 17) indicated exhaustion had moderate and low correlations with the other burnout dimensions, and a measure

combining all three dimensions (SumBurn) had a weak relationship with exhaustion and moderate correlations with cynicism and reduced efficacy. A combination of exhaustion and cynicism (TotBurn) showed a strong correlation with exhaustion and cynicism and a moderate relationship with reduced efficacy and had the correlation closest to that of each burnout dimension with overall needs fulfillment. TotBurn was chosen for the assessment of overall burnout. A Shaprio-Wilk analysis of NeedFill and TotBurn indicated that both were normally distributed, with TotBurn achieving a significance score of $p > .0001$ and NeedFill $p = .013$.

Table 17. Burnout and Intrinsic Needs Spearman Correlation Matrix

	1	2	3	4	5	6	7	8
1. Exhaustion	1.00							
2. Cynicism	.495*	1.00						
3. Reduced Efficacy	.373*	.531*	1.00					
4. Autonomy	-.571*	-.483*	-.512*	1.00				
5. Competence	-.518*	-.591*	-.582*	.613*	1.00			
6. Relatedness	-.270*	-.372*	-.523*	.470*	.520*	1.00		
7. TotBurn**	.867*	.841*	.531*	-.619*	-.652*	-.377*	1.00	
8. SumBurn**	.083*	.569*	.532*	.220*	-.278*	-.144*	.361*	1.00
9. NeedFill**	-.534*	-.585*	-.659*	.848*	.824*	.794*	-.658*	-.066*

* Significant at $p < .01$
**TotBurn combined cynicism and exhaustion; SumBurn combined all three burnout dimensions; NeedFill combined all three intrinsic needs.

Demographic Factors and Burnout/Needs Fulfillment

An analysis was made to determine whether the sample's demographic characteristics were related to differences in overall burnout and needs fulfillment scores. Student's-t test was used to assess the differences associated with the first demographic variable, gender. Means and standard deviations of the burnout and needs fulfillment scores were first calculated for each gender set (Table 18). The results showed that males reported lower burnout (21.71 compared to 22.02) and lower needs satisfaction (104.55 compared to 112.00) than females. The Levene equality of variance test for gender-burnout indicated that the assumption of equal variance for the two populations was met (Sig. = .729, greater than the required alpha significance of .05) and the t-test yielded a p value of .248, greater than the cutoff significance value of .05. The gender-needs Levene test also indicated the equal variance condition was met (Sig. = .632), and that the difference in mean scores for needs fulfillment between genders was significant at the $p < .05$ level (Table 19). In summary, a statistically significant difference between gender means was detected for needs fulfillment, but not for burnout.

Table 18. Burnout and Needs Fulfillment Means related to Gender

Gender	Count	Mean-Burnout	SD-Burnout	Mean-Need Fulfillment	SD-Need Fulfillment
Male	58	21.71	12.33	104.55	18.17
Female	44	22.02	11.97	112.00	17.28

Table 19. t-Test - Gender

	Levene Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	*t*	df	Mean Difference	Std Error Diff.	Sig. (2-tailed)
Between Groups-Burnout Equal Variance Assumed	.121	.729	-.130	100	-.316	2.43	.897
Between Groups-Burnout, Equal Variance not Assumed			-.130	94.1	-.316	2.43	.897
Between Groups-Needs Fulfillment Equal Variance Assumed	.230	.632	-2.09	100	-7.45	3.55	.039*
Between Groups-Needs Fulfillment, Equal Variance not Assumed			-2.11	95	-7.45	3.53	.038*

Significant at $p < .05$

Two methods, a visual assessment of means and an analysis of variance (ANOVA) analysis, were used to assess burnout and intrinsic needs fulfillment for the different age groups. 98 respondents provided age information, allowing for a 95% confidence level with a 1.4% confidence interval. Because of the low number or respondents reporting an age range of 20-29 (N = 3), that category was combined with the next highest, and means and standard deviations for exhaustion and needs fulfillment were then calculated for each age group (Table 20). Visual inspection of the means and standard deviations indicated that they were quite close, an observation confirmed by the ANOVA analysis. Both the burnout and combined needs fulfillment data demonstrated homogeneity of variance with Levene Statistic significance scores of .405 and .315 respectively, indicating that the ANOVA calculation was valid (Table 21). The ANOVA calculation produced significance values of 1.00 (burnout) and .49 (needs fulfillment),

both greater than the .05 significance score required to reject a null hypothesis that there was no statistically reliable difference between the age group scores (Table 22). ANOVA was also used to assess the differences between married, single, and divorced/separated group scores.

Table 20. Burnout and Needs Fulfillment Means related to Age

Age	Count	Mean-Burnout	SD-Burnout	Mean-Need	SD-Need
20-39	21.88	10.36	6.51	101.76	18.97
40-49	21.93	10.74	5.81	107.90	19.62
50-59	21.70	12.87	7.33	109.56	15.63
60 and Over	22.08	15.89	8.51	109.50	21.46

Table 21. Homogeneity of Variances Test – Age

	Levene Statistic	df1	df2	Sig.
Age- Burnout	.982	3	98	.405
Age-Needs Fulfillment	1.20	3	98	.315

Table 22. ANOVA – Age

	Sum of Squares	df	Mean Square	F	Sig
Between Groups-Burnout	1.87	3	.624	.004	1.00
Between Groups-Needs Fulfillment	786.00	3	262.33	.828	.498

The relationship of marital status to burnout and intrinsic needs fulfillment was analyzed by a method similar to that used for age. First, the data of the sole respondent reporting their status as separated was combined with those reporting as divorced for a total N = 10. Next, means and standard deviations were calculated for each group (Table 23). Single respondents reported the highest mean level of burnout and the lowest needs fulfillment, while divorced/separated respondents scored lowest in burnout, and reported needs fulfillment slightly higher than married respondents. The Levene statistic for both groups was greater than the .05 confidence level, indicating that the null hypothesis of equal variance could be accepted and that the ANOVA results could also be accepted if significant (Table 24). The ANOVA Sig. value for burnout was above the $\alpha = .05$ significance threshold, indicating no statistically reliable difference between groups, while the needs fulfillment Sig. value indicated a significant difference (Table 25). A Games-Howell post-hoc analysis of the differences between marital group means indicated that the lower average needs fulfillment for single compared to married respondents was significant at $p < .05$ (Table 26).

Table 23. Burnout and Needs Fulfillment Means related to Martial Status

Marital Status	Count	Mean-Burnout	SD-Burnout	Mean-Need Fulfillment	SD- Need Fulfillment
1. Married	75	21.40	12.15	110.16	16.67
2. Single	17	26.65	13.21	95.59	21.95
3. Divorced/Separated	10	17.00	7.27	110.50	13.95

*Mean-Ex = Mean for Exhaustion; SD-EX = Standard Deviation for Exhaustion

Table 24. Homogeneity of Variances Test – Marital Status

	Levene Statistic	df1	df2	Sig.
Marital Status – Burnout	1.58	2	99	.212
Marital Status – Needs Fulfillment	1.197	2	99	.306

Table 25. ANOVA – Marital Status

	Sum of Squares	df	Mean Square	F	Sig
Between Groups-Burnout	641.61	2	320.80	2.24	.112
Between Groups-Needs Fulfillment	3025.66	2	1512.18	2.91	.009*

* Significant at p<.01

Table 26. Mean Differences – Marital Status and Needs Fulfillment

	Mean Differences		
Marital Status	1	2	3
1. Married	--		
2. Single	-14.57*	--	
3. Divorced/Separated	.340	14.91	--

*Significant at p<.05

A large majority of respondents reported themselves as non-Hispanic and White, making analysis of different levels of burnout and needs fulfillment for racial and ethnic groups a challenge (Table 27). The mean burnout score for Hispanics was 11.00, compared to 22.32 for non-Hispanics, but the small number of Hispanics (N=3) did not support the use of statistical tests to analyze ethnic differences. The situation was similar for analysis by race. Whites accounted for 82.35% of respondents, reporting a mean burnout score of 21.86 and overall needs satisfaction score of 109.61. Blacks scored 20.50 and 101.25 on the same two measures, while the three Asians reported mean scores of 35.00 and 76.00. For means analysis the scores for all non-Whites were combined into a single measure. The results of Levene's test indicated that a null hypothesis of no difference in variance between White and non-White groups could not be rejected for both burnout and needs fulfillment (Table 28). Student's t-test was used for assessing differences between White and non-White groups (Table 28). A significance value over .05 was obtained for burnout, indicating no statistically significant difference between the racial groups, a result consistent with the close means and large standard deviation data in

Table 27. The t-test yielded a significant value (p = .026) for the difference in needs fulfillment between Whites and non-Whites.

Table 27. Burnout and Needs Fulfillment Means related to Ethnicity/Race

Ethnicity/Race	Frequency	Mean-Burnout	SD-Burnout	Mean-Need Fulfillment	SD-Need Fulfillment
Hispanic	3	11.00	5.57	107.24	18.27
Non-Hispanic	95	22.32	12.28	127.67	14.51
White	84	21.86	12.35	109.61	13.56
Non-White	18	21.78	11.29	99.17	20.05
Black	8	20.50	12.456	101.25	19.26
Asian	3	35.00	9.54	76.00	16.52
American Indian/ Alaskan Native	1	19.00	-	79.00	0.00
Other	6	19.33	17.33	111.33	12.29

Table 28. t-test - Race

	Levene Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	*t*	df	Mean Difference	Std Error Diff.	Sig. (2-tailed)
Between Groups-Exhaustion, Equal Variance Assumed	.41	.52	.025	100	.079	1.84	.297
Between Groups-Exhaustion, Equal Variance not Assumed			.027	26.5	.079	1.67	.259
Between Groups-Needs Fulfillment Equal Variance Assumed	.180	.672	2.27	100	10.44	4.60	.026*
Between Groups-Needs Fulfillment, Equal Variance not Assumed			2.05	22.68	10.44	5.09	.052

*Significant at p<.05

Differences associated with education level were also first assessed by examining group means. The scores of those respondents reporting some college (N = 8), vocational school (N = 1) and a professional degree (N = 1) were combined into a vocational-professional category, and means and standard deviations then calculated for all education groups (Table 29). The mean burnout score for the vocational-professional category was lowest, 15.20, compared to 26.10 for Bachelor's degree, 18.79 for Master's degree, and 17.00 for those holding a doctorate. Group means for needs fulfillment followed a corresponding pattern for most of the respondents: higher for the vocational-professional group (117.70) than for Bachelor's degree (102.33) or Master's degree (110.52), although the doctorate holders reported the most needs satisfaction (130.50).

Following the means assessment, differences in education level for burnout and needs fulfillment were assessed by ANOVA. The Levene statistic calculation for both burnout and needs fulfillment yielded values greater than the $\alpha = .05$ standard for rejecting the null hypothesis of no difference in variance between education groups (Table 29). The ANOVA assessment of education produced significance values of .006 for burnout and .008 for needs fulfillment, both less than the .05 significance required to reject a null hypothesis that there was no statistically reliable difference between the age group scores (Table 30). A Games-Howell non-parametric post-hoc analysis indicated the difference in burnout means between the vocational/professional group and Bachelor's degree holders (10.90), those holding a Bachelor's degree and Master's degree (-7.32), and the difference in needs fulfillment means between the vocational-professional and Bachelor's degree groups (-15.37) were significant at the .05 level (Tables 32 and 33).

Table 29. Burnout and Needs Fulfillment Means related to Education

Education	Count	Mean-Burnout	SD-Burnout	Mean-Need	SD-Need
Vocational-Professional	10	15.20	7.19	117.70	12.54
Bachelor	48	26.10	12.73	102.33	18.89
Masters	42	18.79	10.97	110.52	16.29
Doctorate	2	17.00	8.48	130.50	14.85

Table 30. Homogeneity of Variances Test – Education

	Levene Statistic	df1	df2	Sig.
Education-Exhaustion	1.64	3	98	.185
Education-Needs Fulfillment	1.22	3	98	.307

Table 31. ANOVA – Education

	Sum of Squares	df	Mean Square	F	Sig
Between Groups-Burnout	1752.34	3	584.11	4.38	.006*
Between Groups-Needs Fulfillment	3756.61	3	1252.20	3.60	008*

*Significant at p < .01

Table 32. Mean Differences– Education and Burnout

	Mean Differences			
Education	1	2	3	4
1. Vocational-Professional	---			
2. Bachelor	10.90*	---		
3. Masters	3.59	-7.32*	---	
4. Doctorate	1.90	-9.10	-1.80	---

*Significant at p < .05

Table 33. Mean Differences – Education and Needs Fulfillment

	Mean Differences			
Education	1	2	3	4
1. Vocational-Professional	---			
2. Bachelor	-15.37*	---		
3. Masters	-7.18	8.19	---	
4. Doctorate	12.80	28.17	19.98	---

*Significant at p <. 05

Years of work experience was the final demographic question survey participants answered. The relationship between work experience, burnout and needs fulfillment was assessed by an inspection of group means followed by an ANOVA calculation. The group with the least amount of project manager experience, 0 – 5 years, reported the highest mean burnout level and the lowest level of needs fulfillment (Table 34). The two groups with the longest work experience, together over 20 years, reported the lowest levels of burnout and scored the highest in intrinsic needs fulfillment.

Table 34. Burnout and Needs Fulfillment Means related to Experience

Experience Years	Count	Mean-Burnout	SD-Burnout	Mean-Need Fulfillment	SD-Need Fulfillment
1. 0-5	10	29.70	16.20	91.30	15.43
2. 6-10	29	21.52	11.14	108.38	21.46
3. 11-15	23	21.26	11.67	112.91	12.03
4. 16-20	18	25.00	12.02	101.39	17.33
5. 21-25	9	16.00	5.87	115.56	16.89
6. >25	8	18.38	15.32	114.88	15.92

*Mean-Ex = Mean for Exhaustion; SD-EX = Standard Deviation for Exhaustion

An ANOVA assessment of the difference between groups was then performed. The results of the Levene test indicated that the null hypothesis of no difference in variances could not be rejected for the different work experience-burnout or experience-needs fulfillment groups (Table 35). The ANOVA results included values greater than the $p < .05$ significance level for burnout, but beneath it for needs fulfillment (Table 36). A Games-Howell non-parametric post-hoc analysis indicated that the difference in means for needs fulfillment between the 0–5 and 11-15 year groups and the 0-5 and 20-25 year groups were significant (Table 37). Because the raw work experience data was of scale type, a bivariate correlation analysis of the relationship between work tenure and needs fulfillment was also made. A non-parametric Spearman's analysis yielded a best-fit line slope of .210 with a 2-tailed confidence significance of .031, less than the $\alpha < .05$ required for statistical significance. A scatter plot diagram of work experience and needs fulfillment, including a best-fit line, is included as Figure 6. The plot shows the 0-5 year

points mostly below the line, and the 11-15 and 20-25 year points tending to be above or near the best-fit line, visually supporting the Games-Howell test.

Table 35. Homogeneity of Variances Test – Experience

	Levene Statistic	df1	df2	Sig.
Experience- Burnout	1.47	5	91	.202
Experience-Needs Fulfillment	1.92	5	91	.098

Table 36. ANOVA – Experience

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups- Experience- Burnout	1200.37	5	204.07	1.65	.154
Between Groups- Experience-Needs Fulfillment	5011.19	5	1002.24	3.33	.008*

Significant at $p < .01$.

Table 37. Mean Differences– Experience and Needs Fulfillment

	Mean Differences				
Years Experience	1	2	3	4	5
1. 0-5	--				
2. 6-10	17.08	--			
3. 11-15	21.61*	4.53	--		
4. 16-20	10.09	-6.99	-11.52	--	
5. 20-25	24.26*	7.18	2.64	14.17	--
6. Over 25	23.58	6.50	1.96	13.49	-0.68

*Significant at $p < .05$

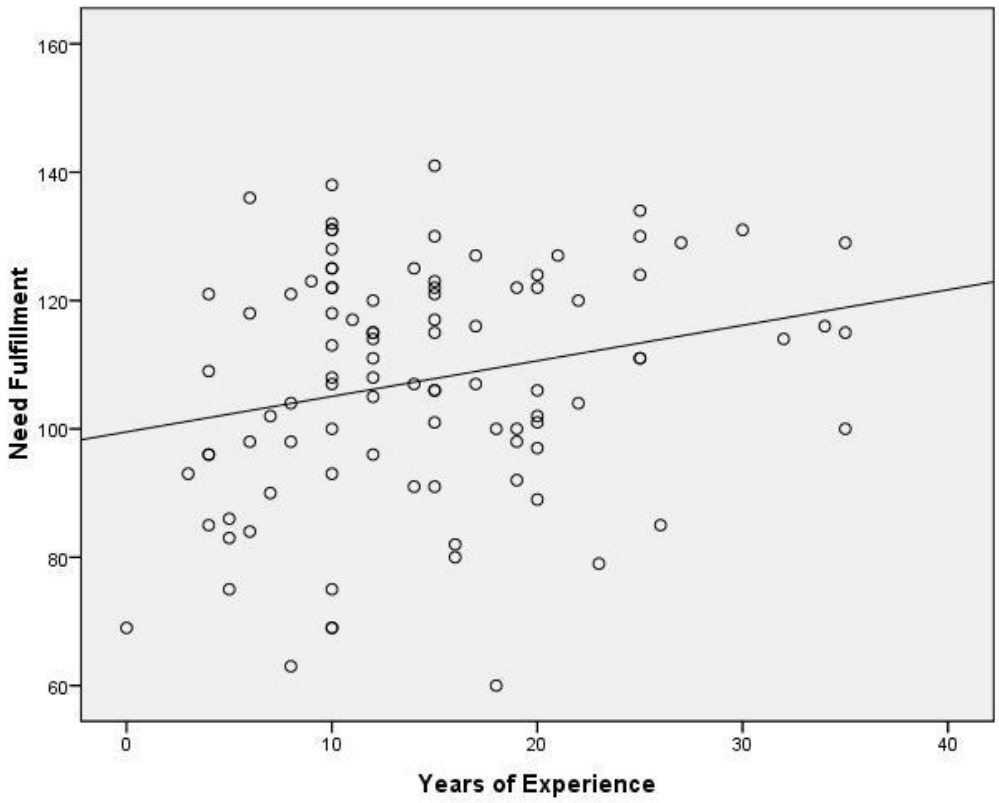

Figure 6. Plot of Experience and Needs Fulfillment

Moderated Multiple Regression Assessment

The moderating effect of each demographic variable on the relationship between burnout and needs fulfillment was assessed through moderated multiple regression. Overall burnout was selected to be the dependent variable of interest, needs fulfillment the primary predictor variable, and the first demographic variable chosen for assessment was years of experience, a scale variable. The first step of the process was to calculate centered values for each of the variables by subtracting the variable's mean from each case's score. Next, the product of the centered independent variables, the moderating variable, was calculated and the data imported into SPSS. Finally, a 3-stage stepwise multiple regression was preformed, first with NeedFill, then adding experience, and finally including the moderating product variable. The effect of years of experience on the relationship was found to be non-significant, resulting in a change to the coefficient of determination of only .02 for needs fulfillment (Table 38).

Table 38. Moderating Effect of Experience

Independent Variables	R^2	R^2 Change	F Change	Sig. F Change
Needs Fulfillment	.395	--	--	--
Needs Fulfillment +Experience	.401	.006	.968	.328
Needs Fulfillment +Experience + Needs Fulfillment times Experience	.403	.002	.205	.651

The other demographic variables, including gender, race, age, marital status, and education, were of categorical type, requiring a more elaborate preparation process for analysis by regression. The initial step was again to center the research variables, overall burnout and needs fulfillment, by subtracting the mean score from the values for each case. Next, contrast dummy variables for each of the categorical variables were calculated. A categorical variable with K groups requires k-1 contrast variables, designed so that zero is significant, accomplished by making the sum of values assigned to the variable's groups to equal zero (i.e. 1, -1; 2, -1, -1) (Stockburger, n.d.). The moderating variables were the product of the centered independent variable times each of the contrast variables, resulting in k-1 moderating variables for each categorical demographic variable. The final steps were to enter the variables into the SPSS regression module and conduct a two-stage regression. Stage one included the independent variable and all contrast variables and the next stage added the moderating variables. A significant R^2 change resulting from the second stage indicates a moderating interaction (Louis, 2009). The Sig F change values for all the categorical demographic variables were above the significance threshold, indicating that no significant moderating effect occurred. (Table 39).

Table 39. Moderating Effect of Demographic Variables with Needs Fulfillment

Demographic Factor	R2 Change	F Change	Sig F. Change	R^2	df1	df2
Gender	.001	.211	.647	.504	1	98
Age	.019	1.204	.313	.508	1	94
Race	.001	.267	.606	.504	1	98
Marital Status	.002	.157	.855	.491	1	96
Education	.004	.361	.698	.502	1	98

Summarizing the results of the inferential analysis, multiple significant relationships were observed in the survey data. A correlation analysis found significant relationships between each of the burnout dimensions and intrinsic needs as well as between overall burnout and needs fulfillment. Significant differences in group scores were also observed for needs fulfillment based on gender, marital status, race, education level, and experience, and in group burnout levels based on education. The demographic variables did not, however, assert a significant moderating effect on the relationship between burnout and intrinsic need fulfillment.

Chapter Summary

Chapter 4 has presented the data analysis of research investigating the incidence of burnout, the correlations between burnout and intrinsic needs fulfillment, and the differences found between demographic variables. Almost all of the research variables of interest, the burnout dimensions and self-determination theory intrinsic needs, exhibited

moderate to strong correlations and a measure of overall burnout showed a strong negative correlation with one for overall needs fulfillment. Table 40 summarizes the assessments of the demographic variable's relationship with burnout and intrinsic needs fulfillment.

Table 40. Significance of Demographic Analysis Results

Variable	Difference in Burnout?	Difference in Need Fulfillment?
Gender	None	Yes
Age	None	None
Marital Status	None	Yes
Race/Ethnicity	None	Yes
Education	Yes	Yes
Experience	None	Yes

Significant relationships were noted between groups for education related to burnout, and gender, marital status education, race/ethnicity, and experience related to needs fulfillment. No moderating effects on the relationship between burnout and needs fulfillment were noted for any demographic variable. How the results of the data analysis relate to the study's research questions and hypotheses are reviewed in Chapter 5.

CHAPTER 5. RESULTS, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

This study investigated the incidence of burnout among project managers and whether burnout, if detected, was related to the satisfaction of intrinsic needs in the work environment. Although numerous professional groups have been the subjects of previous burnout research, project managers have not been among them. Because projects are an increasingly important aspect of firms' operations and strategy execution, and project managers are the key personnel in overseeing the successful execution of projects, questions relating to project manager effectiveness are relevant to many organizations. Burnout is a condition of employee debilitation and, if it seriously affects project managers, could be a factor contributing to project failure. On the other hand, motivated employees are an asset to all organizations and satisfaction of intrinsic needs may be a component of employee motivation and effectiveness.

The case for assessing levels of burnout among project managers was supported by a comparison of antecedent conditions described in the burnout literature with the work environment described in the project management literature. Conditions associated with burnout in the project manager work environment include work overload, organizational policies, lack of supervisory support, role stress and boundary spanning. Additionally, constant change was identified as a stress-inducing condition that is routinely experienced by project managers. Altogether, these conditions provided the rationale for an investigation of project manager burnout.

Intrinsic motivation, in contrast, is a condition supporting worker involvement in their jobs. Through its six component theories, the self-determination construct explains

how need fulfillment results in intrinsic motivation and a that worker may find fulfillment of intrinsic needs on the job, resulting in engagement and alignment with their work. The nature of the work, how supervisors behave toward workers, and individual traits all interact to support or detract from needs fulfillment, intrinsic interest, and self-motivation towards work. Some research has already explored the relationship between burnout and extrinsic motivation in athletes; this study continued that theme with project managers.

Summary and Discussion of Results

This study used a quantitative survey methodology with established instruments to investigate burnout and intrinsic needs fulfillment among project managers. A quantitative method was appropriate for several reasons: the research questions concerned a sizable population; the theoretical framework for the study was well established; and survey instruments of demonstrated validity could be applied to the study. The Maslach Burnout Inventory – General Survey is the general-purpose version of the most widely used instrument for burnout research. The Basic Needs Satisfaction at Work instrument was designed by the self-determination theory's pioneering authors specifically to measure fulfillment of intrinsic needs in the workplace. Quantitative data from some other burnout study samples were also available for comparison.

The survey's data were examined to address the research questions and hypotheses using Microsoft Excel, the SPSS statistical software program, and two online calculators. Descriptive statistics including means, modes, standard deviations, and frequencies were presented in tables that summarized the responses of the 102 valid survey respondents. Also, after reverse coding of the appropriate questions and scales, an assessment of the survey instruments' internal reliability was made using Cronbach's

alpha. The descriptive analysis answered the first research question and hypothesis, and was followed by an inferential analysis to assess the remaining hypotheses using Student's t-test, ANOVA, correlations, and regression analysis.

The research found that project managers experienced moderate levels of burnout. The study also found that overall burnout, measured by a combination of emotional exhaustion and cynicism, correlated strongly with overall intrinsic needs satisfaction. Some demographic factors were found to be related to burnout and needs fulfillment, but none were also found to moderate the relationship between needs fulfillment and burnout. An analysis of the research findings related to each hypothesis is provided in greater detail in the following sections.

Research Questions and Null Hypotheses Assessment

Research Question 1: Do project managers experience significant levels of burnout?

H10: Project managers will report no burnout in the workplace.

Strong support for rejecting this hypothesis was found among the research sample. The mean level of reported exhaustion and cynicism among the responding project managers was moderate, with a significant portion, 27.45%, indicating high distress in those two dimensions (Table 9). According to the Golembiewski burnout-level model the project manager population was split between low and moderate levels of burnout (Table 12). Because the number of survey respondents supported a 95% confidence level with a 1.3% interval, the true mean score for exhaustion could be expected to range from 12.86 to 11.34, both within the moderate range (Table 10) reported for the Maslach Burnout Inventory.

Research Question 2: Is the work environment's fulfillment of intrinsic needs related to burnout levels among project managers?

H20: Project managers' overall intrinsic needs fulfillment and burnout scores will exhibit no significant correlation.

A correlational analysis of overall burnout and intrinsic need fulfillment scores found a significant relationship. The Spearman correlation coefficient between overall burnout (TotBurn) and needs fulfillment (NeedFill), was -.658. Additionally, each of the burnout dimensions was found to have moderate to strong negative correlations with the need fulfillment factors, with the exception of relatedness which exhibited a weak negative correlation with exhaustion (Table 17). Together these results indicated a significant negative relationship between burnout and intrinsic needs satisfaction, supporting rejection of the null hypothesis.

The next three hypotheses concerned the strength of relationships between the burnout model dimensions and self-determination theory intrinsic needs. The null hypotheses assert that no significant relationship exists between the dimensions and components, while the alternative asserts that a relationship exists, and that preferably emotional exhaustion will be most closely related to autonomy, cynicism to relatedness, and reduced efficacy to competence. The correlations of each of the factors are provided in Table 17.

Research Question 3: Are the self-determination theory sub-factors (autonomy, relatedness, and competency) related to the dimensions of burnout (exhaustion, cynicism, and inefficacy) in the work environment?

H30: Project managers' sub-scores on the self-determination theory dimension of autonomy will exhibit no correlation with the burnout syndrome dimension of exhaustion.

The strongest factor correlation detected for exhaustion, -.571, was with autonomy, supporting rejection of hypothesis H30. When autonomy as a predictor variable is regressed with exhaustion, the value of the resulting coefficient of determination ($R^2 = .369$, $p < .001$) indicated that 37% of the variation in exhaustion could be explained by the autonomy score.

H40: Project managers' sub-scores on the self-determination theory dimension of relatedness will exhibit no correlation with the burnout syndrome dimension of cynicism.

The observed correlation between cynicism and relatedness, a moderate -.372 ($p < .01$), supports rejection of this hypothesis, but the correlation was not the strongest detected for either factor. Cynicism's strongest correlation was with fulfillment of the need for competence, measured at -.591, while relatedness correlated most strongly with reduced efficacy (-.523). The correlation between cynicism and competence was the highest measured between the burnout and need satisfaction factors.

H50: Project managers' sub-scores on the self-determination theory need for competence will exhibit no correlation with the burnout syndrome dimension of reduced effectiveness.

Strong support was found for rejecting hypothesis H50. Competence and reduced efficacy showed a strong negative correlation, -.582, the third-strongest correlation between any burnout-intrinsic needs pairs. A post-hoc Pearson's regression for the two factors resulted in a score of R = -.653, the strongest for any two factors. A regression

analysis using competence as the predictor and reduced efficacy as the criterion variable yielded a coefficient of determination of .426 ($p < .001$).

Altogether, the data analysis supports rejection of H30, H40, and H50, though H40 and H50 did meet the preferable criteria of showing the strongest relationship between cynicism/relatedness and reduced efficacy/competence.

Student-t tests and ANOVA were used to assess the relationships between overall burnout (TotBurn) the combined intrinsic need fulfillment score (NeedFill), and each of the demographic variables. The results, shown in separate tables (Tables 18–38), indicated that education was related to differences in both burnout and need fulfillment, while gender, race, marital status, and experience significantly affected only needs fulfillment. No significantly meaningful difference in scores could be detected for age.

Research Question 4: Are demographic factors related to burnout levels at work?

H60: Project manager demographic factors such as gender, race, age, marital status, education, and experience will have no effect on the levels of burnout in the workplace.

Because a statistically significant difference in burnout levels was detected in association with one demographic factor, rejection of this hypothesis was partially supported. The ANOVA assessment of education levels with burnout indicated a significant difference between groups (Table 31) and that the difference in mean scores between those with a vocational/professional education, Bachelor's and Master's degrees was a likely source (Table 32). Those with Bachelor's degrees reported higher overall burnout.

Research Question 5: Are demographic factors related to intrinsic need satisfaction?

H70: Project manager demographic factors such as gender, race, age, marital status, education, and experience will have no effect on the levels of intrinsic needs satisfaction in the workplace.

Because several demographic factors were associated with statistically significant differences in intrinsic need satisfaction levels, rejection of this hypothesis was supported. Gender, race, marital status, education level, and years of work experience were all associated with significant differences in the total amount of reported intrinsic needs fulfillment. Women, single persons, non-Whites, Bachelor's degree holders, and the least experienced workers all reported lower needs satisfaction levels (Tables 19, 25, 28, 32, and 37). Males, Whites, Master's degree holders, divorced persons (followed closely by married persons), and the most experienced workers all reported higher levels of needs satisfaction.

Research Question 6: Do demographic factors moderate the relationship between burnout and intrinsic needs satisfaction?

H80: Project manager demographic factors such as gender, race, age, marital status, education, and experience will have no effect on the overall level of burnout and intrinsic needs satisfaction.

The moderating effect of the demographic variables on the relationship between burnout and intrinsic needs fulfillment was investigated through the use of moderated multiple regression (MMR). Moderator variables influence the strength of the relationship between dependent and independent (or predictor and criterion) variables

(Baron & Kenny, 1986). The results of a 3-staged moderated multiple regression analysis indicated none of the demographic variables had a significant moderating effect on the relationship between needs fulfillment as a predictor and burnout as a criterion (Table 39) and that hypothesis H80 could not be rejected.

Discussion of Findings and Post-Hoc Analysis

Overall Burnout Findings

The data indicated that the project manager sample did experience moderate levels of burnout, answering the first research question and hypotheses. The range (zero to thirty) and standard deviation (7.09) of the sample's emotional exhaustion scores indicate a wide variability in the amount of burnout experienced by project managers. The mean scores of the burnout dimensions were compared to those of samples used to validate the Maslach Burnout Inventory – General Survey, data included in the instrument's instruction manual (Maslach, Jackson, & Leiter, 1996). An initial analysis indicated the study's overall burnout levels were similar to the moderate scores recorded in the validation research (Table 41). The data from the earlier validation research and this study were compared post-hoc using multiple online t-test calculators with consistent results, and the test results from the Qualitative Skill Simple Interactive Statistical Analysis (t-test, n.d.) are provided in Table 42. This sample's mean exhaustion scores (6.14% higher) were not significantly different from the validation data, while cynicism (18.18% higher) and efficacy (9.28% higher) were. It can be noted that the efficacy score must be reversed to yield inefficacy and the higher efficacy score for this sample indicates lower burnout in that dimension. The reported levels of burnout-stress for this

study, with one dimension higher, one lower, and one with no difference, could be characterized as equivalent to the moderate levels reported in the earlier research.

Table 41. Comparison of National and Sample Burnout Scores

	N	Exhaustion Mean	Exhaustion SD	Cynicism Mean	Cynicism SD	Efficacy Mean	Efficacy SD
National Samples*	5259	2.28	1.3	1.65	1.19	4.49	0.97
Study Sample	102	2.42	1.4	1.95	1.33	4.85	0.88

* Maslach, Jackson, & Leiter, 1996

Table 42. Student's-t test of National and Sample Burnout Scores

	Student's-test for Equality of Means				
	Mean Difference	Std Error Diff	t	df	Sig. (2-tailed)
Exhaustion	.14	1.84	-.936	103	.297
Cynicism	.3	1.67	-2.26	103	.013*
Efficacy	.36	5.36	-4.08	105	>.001**

*Significant at p <. 01
**Significant at p < .05

While this comparison gives an idea of how the sample project manager's burnout levels compare to those of previous research, it does not address the seriousness or consequences of burnout in terms of how negative job or personal effects associate with score levels. The precise correlation between moderate and high levels of burnout on negative outcomes like absenteeism, turnover, or perceived performance is not known. Burnout research indicates that negative consequences are generally related to higher

burnout scores, but at what level the consequences become manifest, and whether there are burnout thresholds above which consequences become more severe, was not indicated from the literature review. The distribution of the sample, with 27.5% of project managers reporting high exhaustion, indicates that significant numbers of project managers may experience burnout serious enough to affect their job performance.

Another assessment of the severity of burnout can be made using Golembiewski's phase model of burnout. The Golembiewski model (Golembiewski, Munzenrider, & Carter, 1983), anchored on the three-dimension framework presented by Maslach, envisions a burnout progression that begins with depersonalization/cynicism, progresses to reduced accomplishment, and includes exhaustion in the most advanced, serious phases (Figure 2). Goodman and Boss, in their 2002 study of burnout's relationship to employee turnover, included an American national burnout assessment made according to the Golembiewski model (Table 43). The data in that study were ranked into low, moderate, and high levels of burnout according to phase groups, with phases I – III rated low, IV and V moderate, and VI – VIII high. The project managers in this study's sample showed a higher percentage with low burnout, a lower percentage with moderate, and a higher percentage with high burnout, the most severe burnout condition hypothesized by Golembiewski. However, the project managers did not report burnout in the highest two phases, which accounted for 28.1% of the national sample.

Table 43. Golembiewski National and Sample Burnout Score Comparison

	Phase							
Sample	I	II	III	IV	V	VI	VII	VII
North American Sample* (%), N= 24,080	25.0	6.0	12.8	8.4	6.8	12.8	7.9	20.2
Project Manager Sample (%), N = 102	53				5	44		
Level	Low			Moderate			High	
North American Sample*	43.8%			15.3%			40.9%	
Project Manager Sample	51.96%			4.90%			43.14%	

*Goodman and Boss (2002)

The moderate level of measured project manager burnout is consistent with observations about their work environment drawn from the literature. Multiple stress-inducing factors have already been mentioned, including work overload, organizational policies, lack of supervisory support, role stress, boundary spanning, and change. Work overload is perhaps the most significant factor cited as contributing to burnout, and excessive workloads have been documented as part of the project managers' work environment (Oertig & Buergi, 2006; Slevin & Pinto, 1987; Sutherland & Davidson, 1989). Given the potential for all the factors to work singly or in concert to generate conditions of high stress, a report of only low levels of burnout from the sample was not expected. A more precise determination of the sources of burnout was beyond the scope of this research effort; the research did, however, contribute to an understanding of whether intrinsic need satisfaction is related to burnout.

Burnout's Relationship to Intrinsic Needs Fulfillment

The survey data indicated a moderate to strong relationship between burnout and needs fulfillment. As could be anticipated, the beneficial and positive questions asked about needs fulfillment showed a consistently negative correlation with the detrimental conditions associated with burnout. Two sets of observations may be drawn from the relationships indicated in the research data. The first concerns a characterization of the sample. The data indicates that the participating project managers experience moderate emotional exhaustion and cynicism, and low feelings of inefficacy. They also felt high-moderate autonomy, had strong feelings of connection to other workers, and felt quite competent in their ability to do effective work.

A second set of observations concerns the relationship between burnout and intrinsic needs factors. The relationships found between the burnout dimensions and self-development theory needs indicate that the constructs measured by the Maslach Burnout Inventory and Basic Needs Satisfaction at Work overlap. The survey results indicated that reduced efficacy and competence, as measured by the two instruments in the study, are closely related psychological constructs. The correlation score between the two, -582, was in the top range of all scores. A post-hoc Cronbach's alpha analysis combining the two scales yielded a score of .852, higher than that for reduced efficacy (.757) or competence (.751) alone. Although not statistically significant, it may also be noted that the portion of the sample reporting high competence and efficacy, respectively 97% and 99%, were closely matched. The correlation between reduced efficacy and competence is not surprising given their conceptual similarity.

Other significant correlations were observed in the survey's data. Exhaustion's strongest correlation was with autonomy (-.571), but the Cronbach's alpha of the two scales combined was only .283. In a post-hoc analysis the scale scores for exhaustion were reversed to provide a measure of energy, similar to the reverse scale procedure used to measure inefficacy (Baucum, 2008; Maslach & Leiter, 1997). The Cronbach's alpha between energy and autonomy was much stronger, $\alpha = .890$. An exhaustive analysis of a balanced six-item scale consisting of three energy and autonomy questions from both of the study's instruments was not feasible because of the number of possible combinations between items (12,376). One six item combination (Maslach Burnout Inventory questions 3, 4, and 6; Basic Needs Satisfaction at Work questions 1, 8, and 7), suggested by the reliability assessment of all twelve energy and autonomy questions, had a Cronbach's alpha score of .861. Numerous other six item energy-autonomy scales were assessed, all having Cronbach's alpha scores between .7 and .859. The results indicated construct congruence between the energy, as well as its antipode exhaustion, and the autonomy scale, further supporting rejection of hypothesis H30. Contrasting with the exhaustion-autonomy and inefficacy-competence pairs, the correlation between cynicism and relatedness (R = -.372), was weaker than average.

The expected strong correlation between cynicism and fulfillment of the need for relatedness was not evident. Instead, cynicism was most strongly related to competence (R = -.591) and relatedness to reduced efficacy (R = -.523) and competence (R = .520). From the burnout model perspective, the Maslach Burnout Inventory-General Survey was developed to de-emphasize work relationships, particularly those between care providers and recipients, replacing questions about feelings towards people with questions about

feelings towards work (Maslach, Jackson, & Leiter, 1996). Thus the depersonalization dimension in the original burnout survey, now titled the Human Services Survey, became the cynicism dimension. Cynicism directed towards the work environment could well be more closely associated with feelings about work accomplishments (competence and efficacy) than relationships (relatedness).

The pattern of correlations between cynicism, reduced efficacy, relatedness, and competence presented an observation of interest. Cynicism's strongest (-.591) and second strongest (.531), correlations were with competence and reduced efficacy. Relatedness also showed strong correlations of almost identical strength with competence (.520) and reduced efficacy (-.523). While the cynicism-relatedness correlation was weak, they both showed the strongest overall correlations with competence and reduced effectiveness. These relationships suggest that competence and reduced effectiveness may in turn be conceptually related. Combined with their relatively high correlation score, their interaction with other factors suggests their relatedness, supporting rejection of hypothesis H50. The pattern of correlations suggested an additional post-hoc assessment of the research variables.

To further assess the relationships between the research variables, a post-hoc correlation analysis of their bivariate correlation coefficients was made. Whereas the initial correlation analysis (Table 17) examined the variable's similarity case-by-case, the second correlation analyzed the similarity of their relationships to the other research variables. The Spearman correlation analysis results (Table 44) were consistent with the initial correlation analysis. Of interest, exhaustion and autonomy showed the strongest correlation (-.967) indicating that they related to the other variables in a strongly opposite

manner, supporting rejection of H30. Cynicism's correlations most strongly matched that of competence (-.933), and reduced efficacy matched relatedness (-.820). The secondary correlation analysis also supported selection of TotBurn and NeedFill as measures of overall burnout and needs fulfillment. TotBurn showed higher correlations with the burnout dimensions than either exhaustion or SumBurn, and NeedFill had high correlations with each intrinsic need. The pattern of correlations for TotBurn and NeedFill were strongly opposite (R = -.867) supporting rejection of hypothesis H20.

Table 44. Correlation (Spearman) of Research Variables Correlations

	1	2	3	4	5	6	7	8
1. Exhaustion	1.00							
2. Cynicism	.773*	1.00						
3. Reduced Efficacy	.644	.711*	1.00					
4. Autonomy	-.967**	-.733*	-.711*	1.00				
5. Competence	-.833**	-.933**	-.728*	.867**	1.00			
6. Relatedness	-.700*	-.733*	-.820**	.767*	.833**	1.00		
7. TotBurn***	.933**	.833**	.728*	-.933**	-.933**	-.783*	1.00	
8. SumBurn***	.400	.833**	.770*	-.417	-.683*	-.700*	.533	1.00
9. NeedFill***	-.833**	-.800**	-.820**	.900**	.900**	.883**	-.867	-.583

* Significant at $p < .05$
* *Significant at $p < .01$
***TotBurn combined cynicism and exhaustion; SumBurn combined all three burnout dimensions; NeedFill combined all three intrinsic needs.

The overall relationship of results from the survey data for burnout and intrinsic needs satisfaction can be interpreted from the perspective of both constructs. From the burnout model perspective, intrinsic motivation arising from needs fulfillment might be considered a variation or component of engagement. From the self-determination perspective, exhaustion could be considered an opposite of autonomy, either controlled motivation or amotivation, both conditions that erode intrinsic motivation, while reduced efficacy appeared to be an opposite of the need for competence. The relatively strong correlations between relatedness and both competence and reduced efficacy suggests that the social climate at work, largely designed out of the Maslach Burnout Inventory – General Survey, was significant.

The Effect of Demographic Variables

The relationship between demographic variables and burnout was mostly consistent with observations in the burnout literature. No significant difference in burnout was found between gender, age, marital status, racial/ethnic and work experience groups. As noted in the literature review, the effects of age can both inhibit and promote burnout. While younger workers may be more easily discouraged at work, they can enjoy higher levels of health and vitality that confer exhaustion resistance. Older workers may possess more realistic expectations about work, but may be influenced by health issues that increase stress and lower motivation. Likewise, married workers may enjoy more social stability and support, but may also experience more stress due to familial obligations. This survey's data did not support a highly conclusive discrimination between racial and ethnic group burnout levels due to the large majority of White, non-Hispanic respondents. The study's results, though, point to an equivalence of experience

between majority and minority groups. The variable exhibiting differences between groups, education level, is one not well explored in the burnout literature. A post-hoc ANOVA analysis of education and an overall burnout measure that combined all burnout dimensions (i.e. SumBurn) found no significant differences between education groups, nor did an ANOVA assessment of education levels with age or a bivariate correlation analysis of education with years of work experience. Schnittker's (2004) research on disparities between education, income, and life stress includes conjecture that those with greater education may more efficiently allocate resources and cope with work challenges, resulting in reduced stress. Whether this factor would pertain to project managers with equivalent age and work experience is unclear.

The exploration of demographic variables affect on needs fulfillment has not been well documented, and the interpretation of the relationships observed in this study could not draw upon earlier studies. Differences in needs fulfillment were found for five groups: gender, race, marital status, education, and work experience. Whereas the burnout literature addresses the possible influence of gender and work tenure on stress levels, the nature of their influence on needs fulfillment has not been explored. Whether the same gender stress factors, including macho attitudes, closeness of social ties, and gender-domination of the workplace (Haynes & Love, 2004, Gaines & Jermier, 1983) detract from female intrinsic needs could be a subject of future study. Likewise, whether the challenge younger workers experience in meeting career expectations (Halbesleben & Buckley, 2004) translates into a frustration of needs fulfillment could be an additional research topic. The differences in needs fulfillment experienced by different marital, racial, and educational groups could also be explored in future studies. The

vocational/professional group reported higher overall needs satisfaction, including higher mean scores for each of the individual needs, while those with Bachelor's degrees had the lowest need fulfillment in every category. What influences could cause needs satisfaction to drop for those with Bachelor's degrees then rebound for Master's and doctorate degree holders are not now clear.

Moderating Effect of Demographic Variables

Similar to the results of one earlier study, the moderating effects of the demographic variables had a negligible or minimal effect on the relationship between burnout and needs fulfillment. Baucum's (2008) dissertation research on work engagement and needs fulfillment among Baptist ministers used the Maslach Burnout Inventory-Human Services Survey and the Basic Needs Satisfaction at Work, and included age, ethnicity, education, years of experience, and years of in current position as demographic variables. That study, using a moderated multiple regression method similar to this research, found no significant moderating effect for the demographic variables (p. 125). The overall conclusion from this study and the previous research is that the demographic variables exerted an insignificant or small influence on the interactions of the two sample's research variables.

Limitations

All research is subject to limitations arising from scope and methodology, and several areas of caution can be identified for this study. One limitation is a lack of longitudinal depth due to the study's one-shot, cross sectional methodology. The lack of a longitudinal (temporal) dimension means that overarching environmental conditions, such an economic downturn or disturbing geopolitical news, that might affect survey

participants views at a particular time will go undetected. The survey was also spatially limited to respondents associated with one firm, affecting the gerneralizability of results. A larger sample from a more broadly distributed population would have resulted in a more desirable sample.

The 710 survey invitations resulted in 102 usable responses, exceeding a response goal of 86 for a 95% confidence level with a 1.5% confidence interval, but still left a shortfall in participation rates. The survey respondents were presented with multiple decision points about their participation, and several factors may have contributed to lower participation rates. First, invitations sent by email may not have the same level of appeal as packages sent through the physical mail (Wogalter, Yarbrough, & Martin, 2000). The email invitations were initially sent from the participating firm in an attempt at increasing the note's legitimacy and making the invitation attractive enough to open and read. This might have backfired, losing the attractiveness of a personal appeal sent directly from the researcher. The invitation was composed to be concise, upbeat, and descriptive, but may have included wording that inclined respondents to not continue. The informed consent form, following a standard format, measured at an 11.5 grade reading level according to Microsoft Word and may have discouraged or confused some respondents. The informed consent form also described the scope of the survey, including an estimated time to complete, which may have discouraged busy project managers.

An assumption was made that respondents would answer honestly and accurately, another potential limitation. Although a degree of subjectivity is unavoidable in research following a method similar to the one of this study, where perceptions of respondents

were the primary data of interest, it still represents a limitation. For instance, since respondents were asked to reflect on their work experience a number of memory biases (choice-supportive bias, hindsight bias, etc.) might have affected results. Also, although efforts were made to assure respondents of anonymity, some may not have participated due to fear of discovery and reprisal by their employers.

Practical Recommendations

This section provides recommendations concerning burnout and intrinsic needs fulfillment. The serious consequences of burnout have resulted in much discussion of its prevention and mitigation and the literature identifying remedies and handling strategies for burnout is well populated. The self-determination theory literature, while less extensive than that addressing burnout, also offers prescriptions for increasing intrinsic needs fulfillment in the workplace. Writings on the application of self-determination theory emphasize establishing conditions leading to needs fulfillment. Discussion of strategies to address burnout similarly focuses on conditions allowing excessive stress and strain to develop. Continuing the risk management theme introduced in the literature review, four strategies for handling risks are commonly identified including *acceptance* (or ignoring), t*ransference*, *avoidance,* and *mitigation* (Project Management Institute, 2008). Of these, avoidance, which seeks to eliminate the source of risk, and management, aimed at lowering the probability of occurrence and/or severity of impact, are the most appropriate approaches for addressing burnout. Three areas for implementing handling strategies, including development of personal resources, recommendations for supervisors, and adjustment of organizational environmental factors that give rise to burnout are discussed in the following sections.

Personal Burnout Handling Strategies

A primary approach for handling burnout conditions is to increase personal resistance through the development of individual coping strategies (Maslach, Schaufeli, & Leiter, 2001). Rationales for efforts undertaken at the personal level include an assumption that it may be more efficient to change persons than organizational environments, and that individuals can benefit from developing robust coping strategies (Halbesleben & Buckley, 2004; Maslach, Schaufeli, & Leiter, 2001; van Dierendonck, Schaufeli, & Buunk, 1998). Farber (1998, p. 5) identified three categories of burnout, including "wearout", boredom, and the "classic" frenetic burnout resulting from overexertion and exhaustion, along with individual remedies. Recommendations to address the classic variety, similar to those identified by Helliwell (1981), include an adjustment of attitude and recognition that perfect results from all work efforts all the time is not necessary or expected. Consciously seeking a balance between the demands of work and one's personal needs (work-life balance) is another recommended approach, as is the pursuit of deliberate de-stressing activities such as exercise and mediation to diffuse work stress. This advice echo's Freudenberger (1974) who advised that a first course of remedy be for burnt-out workers to take a long restful break from the workplace in his seminal burnout article.

A personal response method supported in the burnout literature is development of effective coping strategies. Active, direct coping is identified as being more effective than indirect, affective, or inactive techniques (Greenglass, Burke, & Ondrack, 1990; Schaufeli & Greenglass, 2001). The theme behind the active strategy is that focusing on the problem and consciously working to bring about change is more efficacious than

suppressing emotions or attempting to alter the way one feels about the situation. Inhibiting or altering the arousal of emotional responses to stressful situations is another therapeutic method with reported success (Muraven & Baumeister, 2000; van Dierendonck, Schaufeli, & Buunk, 1998; Yip, Rowlinson & Oi Ling, 2008). Development of the capacity to self regulate arousal responses emphasizes the empowerment of persons' capability to decide what emotional responses are suitable rather than inhibiting feelings after they have been evoked. Adjustment of expectations about the job is a related approach seeking to mitigate burnout-inducing stress that results from a misfit between the worker and their position (Halbesleben & Buckley, 2004).

Perhaps the most comprehensive and recognized description of the environmental factors affecting burnout and engagement comes from Maslach, Schaufeli and Leiter (2001). The factors, including workload, control, reward, community, fairness, and values are largely under organizational control but can be influenced by individuals. Key approaches for persons seeking relief from burnout include assuming responsibility for their own well being, determining which work factors require attention, and then following a disciplined process focused on improving the situation. Maslach and Leiter (2005) describe a general problem solving process (define the problem; set objectives; take action; track progress) as well as specific tactics to address shortcomings in each of the work areas.

A capstone necessity for implementing personal resolution methods is awareness and education. Maslach and Goldberg (1998) described the problems with a shortfall of awareness as:

> "First, people may not appreciate just how bad burnout can be or how likely it is to happen to them. Second, people may not recognize how specific behaviors lead to an increase in risk. Third, people may put themselves at risk by overlooking options that reduce the penalties for refusing to engage in high-risk behaviors (Beyth-Marom & Fischhoff, 1995). It may be that people fail to perceive the risky nature of their behaviors because their behaviors do not seem especially 'risky'" (p. 70).

The question of how workers become aware of their own situation and what options are available to them then is central to building up individual resistance to burnout. If not already too exhausted by their situation, workers may practice self-help, identify their predicament, and discover antidotes as individuals. They may also become more aware through wellness programs within their organizations. Introduction of the organizational factor leads the next area of burnout management, monitoring and adjustment of the work environment at the supervisory level.

Supervisor Burnout Handling Strategies

While individual stress reduction strategies can be effective, the burnout literature suggests that organizational action is ultimately required for resolution of environmental factors contributing to burnout. Though persons may be more or less effective in handling stress at work, the perspective held by many burnout researchers is that even hardy workers in an adverse environment will develop burnout beyond the capability of personal remedies (Leiter, 1991; Maslach, 2003). Organizational effects, rather than individual differences, are viewed as the most important determinant of burnout (Angerer, 2003; Maslach, 2003). Two perspectives for considering how the firm can help

prevent burnout, and address it once it is observed, are actions that can be pursued by individual managers and those that can be pursued at the organizational level.

Managers, as representatives of company values who exercise authority within their span of control, can play an important role in detecting, preventing, and treating burnout. Just as managers may be considered as generalists who integrate diverse work elements for successful outcomes (Lalonde, Bourgaul & Findeli, 2010), so their role in addressing burnout is broad, encompassing the entire work environment and relying on an understanding of people (Leiter & Maslach, 2001). Many of the burnout reducing behaviors managers might pursue can be identified as job enrichment strategies, including increased job involvement, enhanced job design, shared decision making, encouragement of autonomy, and supportiveness (Graber & Kilpatrick, 2008; Halbesleben & Bowler, 2007). Managerial efforts to avoid or mitigate burnout extend beyond the structure of jobs to include the social environment.

Social support is an aspect of the work environment critically linked to burnout (Halbesleben & Buckley, 2004; Maslach & Goldberg, 1998) and one in which managers play a primary role (Schaufeli & Greenglass, 2001). Workers' estimation of personal effectiveness in the workplace relies to a great extent on the feedback they receive from others, including fellow workers and especially supervisors. Perceptions of effectiveness, in turn, are directly related to the personal accomplishment dimension of burnout as well as the helplessness associated with exhaustion. Social support is enacted by caring managers who provide informational, practical, and emotional support to workers (Schaufeli & Greenglass, 2001; Posig & Kickul, 2003; Lussier, 2006). The opposite of emotional support is negativity, something managers can notice and take immediate

action to resolve by focusing on team goals, negotiation, and expressing appreciation for work accomplishments (Lussier, 2006). Supportive managers can be perceived as a bulwark and counter to organizational bureaucracies that are sources of frustration and stress to workers (Lussier, 2006). Managers also play an important role in the development of workers, including personal characteristics that address burnout.

Manager awareness of burnout, including the conditions that foster its onset, its symptoms, and its serious consequences, is essential for them to be effective agents of detection and mitigation. Managers are the first to become aware of burgeoning burnout symptoms through perceptions of misfit or dissatisfaction with working conditions or outcomes (Rubino, Luksyte, Perry, & Volpone, 2009). Because burnout can take different forms, such as "wearout", classic burnout, and "underchallenge," (Farber, 1998, p. 4) managers can make an important initial determination in assessing the sources of stress and the particular effect they are having on a worker. Supporting worker development by providing encouragement and sharing control over the environment through participative decision making are methods to alleviate feelings of helplessness and isolation that often accompany burnout (Lussier, 2006; Richardson & Burke, 1995). Providing resources to encourage worker autonomy need not be expensive; work-related information and feedback are among the most empowering resources supervisors can provide.

Organizational Level Burnout Handling Strategies

The important role of systemic, firm-level programs to prevent and treat burnout is well documented in the literature. While many articles and much discussion for treating burnout focuses on individual techniques, researchers hold that organizational

and environmental factors are ultimately more important that individual characteristics (Maslach, 2003). Managers, including executive leaders, exert more control over workplace environments than individual employees with the result that individual attempts to address burnout are always limited by organizational control. The problem is that without change to the work environment employees are not able to address the root sources of burnout stress. The results of individual attempts to remedy burnout are mixed, with attempts at reducing exhaustion more successful than treatment of depersonalization and feelings of reduced accomplishment (Halbesleben & Buckley, 2004), two factors that depend on social feedback. While individuals may directly influence work overburden, they have less control over the type of feedback and amount of social support they receive. A combination of individual methods to address burnout symptoms along with organizational support of workplace changes is needed for success (Angerer, 2003).

Preemptive action to avoid the onset of burnout is one common theme in the literature with application at the organizational level. Burnout situations, once they have reached an advanced stage, can be very persistent and difficult to resolve (Richardson & Burke, 1995) suggesting that an avoidance strategy may be more efficient and effective. Awareness of the alienation that minority ethnic groups and genders may encounter in the workplace establishes one area for preemptive action. Human resource departments can establish effective equal-opportunity programs, be vigilant for indicators that minority workers are being slighted, and work to establish a pro-diversity organizational climate (Deitch et al., 2003; Hicks-Clarke & Iles, 2000). Addressing the potential for burnout at the beginning of workers' careers has been identified as the time of greatest effectiveness

(Bakker, Demerouti, & Schaufeli, 2002). The experience of stress and strain accompanying the transition to a new workplace or work role is not limited to minorities and efforts directed towards creating a welcoming, safe social environment may reduce the initiation of burnout for new workers (Richardson & Burke, 1995). Training programs that help workers identify job requirements and make a determination of whether they are suited for a position, as well as allowing managers or human resource personnel to sift out those who will not be suited for some roles, is another recommended approach (Freudenberger, 1974; Richardson & Burke, 1995). Setting realistic expectations early (Freudenberger, 1974) to avoid the trap of over-commitment common to dedicated workers is also advised.

Recognizing and addressing stressful work conditions comprise another area of organizational action. The process of addressing workplace challenges begins with gathering information about the current state of affairs; periodically surveying the workforce about the level of experienced stress is a recommended initial step (Menon & Akhilesh, 1994). Overt expressions of burnout made by workers are signs of a problem within the organization that is probably not limited to single cases. The firm's leaders can start by recognizing that groups and divisions within the organization can face different working conditions and varying levels of stress. Development of action plans that are appropriate and relevant to divisions and teams within the firm enhances their effectiveness (Golembiewski, Boudreau, Ben-Chu, & Hauping, 1998; Menon & Akhilesh, 1994). In addition to addressing specific conditions, such as work overburden (Ahola et al., 2000), many of the same high-performance human resources and job enrichment actions that can be practiced by individual managers may be introduced with

greater effect at the organizational level. Job participation and involvement are related to lower levels of burnout in organizations (Graber & Kilpatrick, 2008), and emphasis on worker empowerment, including control of work processes, participative decision making, building and using skills, and encouragement of autonomy are recognized as especially critical areas (R. T. Lee & Ashforth, 1996; Maslach & Goldberg, 1998). Organizational programs to help distressed workers are another area for consideration. Stress debriefings, offering the opportunity to express feelings and observations about distressing work conditions, have been related to lower stress and higher worker engagement (Dowler, 2005).

Ultimately, the decision to develop non-distressing work environments and to assist workers affected by burnout is a reflection of organizational values. Values are enacted via the organization's culture, a reflection of what outcomes are believed to be most important in the firm and what behaviors are approved for achieving those outcomes (Schein, 1986). The culture is then expressed through worker and supervisor behaviors, which can be competitive or supportive, authoritative or transformational, depending on the collective belief system. Cultures are stable, evidenced by longitudinal studies that found burnout conditions persisting in some firms for up to ten years (Stansfeld, Bosma, Hemingway, & Marmot, 1998; Kalimo, Pahkin, Mutanen, & Toppinen-Tanner, 2003). An organizational commitment to worker welfare, valuing workers as important internal stakeholders, is manifest by seriously applying resources and processes to achieve that end (Graber & Kilpatrick, 2008; Maslach & Leiter, 2005). The concern is that that without conscious management workplace trends in important areas, such as the six identified by Maslach and Leiter (2001, 2005), may be running in

the wrong direction, tending to raise burnout levels. The remedy they identified is a combination of management intervention to improve the environment and individual action to develop needed skills and mindsets.

Intrinsic Motivation

The workplace is a setting that can foster or inhibit intrinsic motivation. Research results indicate that workers who satisfy their needs for autonomy, have the opportunity to demonstrate competence, and who develop supportive social relationships experience higher levels of commitment to work (Greguras & Dierfendorff, 2009). Many of the recommendations for increasing intrinsic motivation dovetail with those for addressing burnout in the workplace. Similar to burnout, strategies to increase intrinsic motivation can be pursued at the individual, proximal supervisor, and organizational levels.

Personal Intrinsic Motivation Strategies

Self-determination theory holds that persons are innately self-motivated to seek success and satisfy their needs for autonomy, competence and relatedness (Deci & Ryan, 2008). To a limited extent, workers can seek to autonomously increase their intrinsic needs fulfillment apart from changes in the immediate job or organizational environment. Environments that fail to meet intrinsic needs are perhaps more immediately obvious to workers than are symptoms of burnout because they notice and resist situations that are controlling, risky, and cold. Burnout victims, on the other hand, may overload themselves without realizing the self-hazard they are creating (Maslach & Goldberg, 1998). Truly intrinsic motivation is also compatible with the individual's self-concept and values. Unlike burnout, a condition often associated only with work, the challenge of

recognition of internal values and goals, and development of the regulatory capability to achieve them, is a lifelong process (Deci, Eghrari, Patrick, & Leone, 1994; La Guardia, 2009; Ryan & Deci, 2000). While workers can strive to identify their personal values and goals, they may have less influence over the amount of autonomy, feedback, and social support they receive at work.

Individual remedies for burnout aim to change workers by mitigating stress symptoms or developing effective coping strategies. In contrast, persons naturally seek to practice the behaviors that contribute to intrinsic needs fulfillment and the challenge lies in giving them the opportunity to do so. Teachers, for instance, can encourage students to explore "interests, preferences, internalizations, values, goals, and aspirations" (Reeve, Nix, & Hamm, 2003, p. 388). From the self-determination perspective, it is important to differentiate between motivation to achieve introjected and truly intrinsic goals. The former are related to compelled, ego-based, or normative influences, while the latter correspond to satisfying autonomous values and needs (Deci & Ryan, 2008; La Guardia, 2009). Motivation to achieve self-identified, non-coerced goals has been related to higher engagement and active coping, contrasting with avoidance behavior, in life-changing circumstances (Amiot, Blanchard, & Gaudreau, 2008). Activities that encourage self-examination and awareness of one's preferences, values, and goals could increase the individual's ability to choose work conditions that support intrinsic motivation. Similar to personal strategies to reduce stress, individual efforts to satisfy innate needs can likely offer only a partial solution, with the balance in the hands of the firm's leadership. The literature provides recommendations for increasing intrinsic needs fulfillment at both the supervisory manager and organizational levels.

Supervisor Motivation Considerations

Individual managers provide important contributions for fostering or frustrating intrinsic motivation through control of the way work is structured and the amount of social support provided. Supervisors can routinely fulfill or inhibit each of the self-determination theory needs for autonomy, competence, and relatedness. The self-determination literature includes guidance on behaviors managers should avoid as well as those that increase needs fulfillment and intrinsic motivation.

Managers can achieve significant improvements by avoiding common missteps that result in a threatening environment, thwarting needs fulfillment and intrinsic motivation. Challenging employees beyond their capabilities and requiring work commitments that undermine social relationships are two examples of discouraged management styles (Meyer & Gagné 2008). Providing feedback is an area that calls for special skill and sensitivity. Some discouraged behaviors include confrontational attitudes, blaming, labeling, and a habit of controlling the conversational agenda, all of which reinforce feelings of external control, undermine confidence, and replace social support with threats (Deci & Ryan, 2008; Stone, Deci & Ryan, 2009). An over-emphasis on work's monetary rewards, rather than its significance and nature, can displace and erode intrinsic motivation in the work itself and may result in pressure towards unethical behaviors to attain the rewards (Stone, Deci, & Ryan, 2009). Competition-based reward or wage schemes may offer short-term gains but ultimately detract from collaboration between workers and force managers to give mediocre ratings to strong performers (McGregor, 2006; Vansteenkiste & Deci, 2003). Even the winners in competitive

environments may have their focus shifted away from the intrinsically satisfying elements of the work environment towards external rewards and control.

By providing a supportive work context, managers encourage workers to become more active in fulfilling their intrinsic needs (Deci, Connell, & Ryan, 1989). Research has found that managerial social support for self-determination plays a significant role in affecting job-related attitudes (Deci, Connell, & Ryan). When workers have the opportunity to choose how they will do work, can demonstrate mastery, and feel connected to and supported by significant others such as managers, they will more likely develop intrinsic motivation and pursue work for the enjoyment derived from it (Deci & Ryan, 2008; Gagne, 2003). The supportive connection comes from supervisors taking the worker's perspective in contrast to forcing their own when framing work objectives (Baard, Deci, & Ryan, 2004). Providing information about the value of tasks to the worker, rather than focusing purely on outcomes for the firm, may increase interest in otherwise uninteresting activities and "facilitate identifying with and integrating the behaviour's value and regulation" (Deci & Ryan, 2008, p. 17).

Both overall intrinsic motivation and satisfaction of each need dimension has been related to managerial support for autonomy in the workplace (Baard, Deci, & Ryan, 2004). Support for autonomy does not so much depend on the task to be performed as upon the work's social setting, something largely under managerial control and including factors such as how planning is accomplished, goals are set, and decisions made. Autonomy support applies in varied cultural contexts, illustrated by the higher degree of autonomy fulfillment reported from managers towards Bulgarian workers compared to Americans (Deci et al., 2001). As mentioned previously, the Bulgarian work

environment, former state-owned enterprises, was thought to be much more directive than the American context, suggesting that workers would experience lower autonomy and needs fulfillment. Experimental research, however, indicates that autonomy is a multi-dimensional construct with perceived locus of control (self-authority to decide) and freedom of volition (the option to accept or decline) playing a stronger role than perceived choice among work options (Reeve, Nix, & Hamm, 2003). Although the concepts overlap, workers who are encouraged to accept responsibility and develop their own approach to work may develop greater intrinsic motivation even if the work assigned is not innately interesting.

Managers who provide useful, informational feedback support employees' ability to exercise autonomy and demonstrate competence, two intrinsic motivational factors. Likewise, the provision of social support directly answers the need for relatedness, and can support worker perceptions of competence. As with burnout, the prescriptions for developing an enriched job environment largely match the recommendations for promoting intrinsic motivation in the workplace. Asking open questions and participative problem solving are other recommended methods to build autonomy and relatedness (Stone, Deci, & Ryan, 2009), and the provision of informational feedback has been found to enhance worker's perceptions of autonomy and the perception that their jobs have impact (Gagné, Senecal, & Koestner, 1997).

Organizational Level Considerations

Behaviors supporting intrinsic motivation often run contrary to the outmoded or instinctive methods practiced by many managers. Because the outmoded methods are often popular and entrenched, moving in the opposite direction towards support for

worker autonomy, competence, and relatedness can seem risky and involve unpopular change and upsetting the status quo (Stone, Deci, & Ryan, 2009). Firms may find it most effective to bring in outside consultants or trainers to introduce autonomy-supportive management methods. Management training aimed at increasing autonomy-supportive behaviors has been shown effective in at least the medium term, increasing those behaviors after completion of a training program (Deci, Connell, & Ryan, 1989).

The literature recommends that programs to support intrinsic needs fulfillment be applied to new employees as soon as they start working in the firm. Beginning when new workers are hired, job selection and screening systems are human resource initiatives that increase the fit between jobs and workers. In addition to assessing skill competencies and personality dispositions, value alignment is another important screening area. According to person-environment fit theory, when worker and organizational values are aligned workers are more likely to encounter circumstances that result in satisfaction of their basic psychological needs (Greguras & Dierfendorff, 2009). Another group socialization tactic to improve the fit between newer employees and the organization is counseling about career progression timelines and stages (Greguras & Dierfendorff). The manner in which success is rewarded is also important for needs fulfillment.

To support intrinsic motivation, firms can attend to the context in which education and promotion opportunities are offered. If framed as valued external rewards, they contribute to the workers' sense of undesirable controlled motivation. If presented as chances to increase decision-making, learn new skills, and to meet and collaborate with others, such rewards support intrinsic motivation (Stone, Deci, & Ryan, 2009). Well-framed training and education supports workers' desire to demonstrate mastery and

realization of the need for relatedness. Research indicates that workers who feel their skills and abilities match job requirements have a higher perceived competence level and that increased competence is associated with better performance (Greguras & Dierfendorff, 2009). According to self-determination theory fulfillment of the need for competence also increases intrinsic motivation.

Social feedback influences the perception of effectiveness in performing work tasks, reinforcing or detracting from feelings of competence. Increased perception of competence, in turn, satisfies an intrinsic need and supports internalization of motivation (Ryan & Deci, 2000). The aggregate of individual managers' attitudes towards workers, essentially a firm's managerial culture, affects intrinsic motivation. Experimental evidence shows that coercive attitudes of executives can flow down from the top, influencing the way subordinate managers treat workers (Deci, Spiegel, Ryan, Koestner, & Kauffman, 1982). Social climates that pressure workers undermine intrinsic motivation, while climates that provide information and are supportive are motivation enhancing (Deci & Ryan, 2008). Some recommended actions to address the three intrinsic needs are autonomy-supportive management, reward and performance systems that provide actionable feedback about competence, and "organizationally sponsored events (e.g., retreats) that satisfy relatedness needs" (Greguras & Dierfendorff, 2009, p. 474). Organizations that support fulfillment of psychological needs as a part of the firm's values promote closer person-organization fit, internalization of organizational values, and intrinsic satisfaction (Greguras & Dierfendorff).

Practical Recommendations for Project Management

Many of the recommendations for addressing burnout and promoting needs fulfillment are applicable to project management. While job enrichment was identified as appropriate for reducing stress and promoting intrinsic motivation, project managers use a variety of skills in varying environments and task broadening is not identified as a pressing concern. Other considerations related to social and material resource support, control over the environment, and balancing the amount of work are more appropriate. The following list is suggested as applicable to project managers and draws from both the burnout and self-determination theory literatures:

- Align project efforts with organizational goals.
- Communicate the importance of project outcomes to project managers and team members.
- Minimize the effects of bureaucratic overhead.
- Increase executive management support of project efforts.
- Balance standard methods and processes with project manager choice.
- Arrange for adequate resources, including training and development.
- Provide counseling on career development and career path expectations.
- Institute job placement screening to improve person-job fit.
- Recognize project team members as important internal stakeholders, and promote value congruence between them, the project environment, and the firm.
- Promote a life-balance perspective regarding workload.

- Recognize differences in personal characteristics, including gender, ethnicity, race, and personal dispositions.
- Develop supportive, non-threatening cultures and work environments.

Two overriding themes stand out at the personal, supervisory, and organizational levels for handling both burnout and needs fulfillment. The first is awareness; those responsible at each level of action must be informed about the potentials for burnout and/or needs fulfillment before they can act. The second theme is values. Actions to handle burnout and encourage intrinsic motivation are most effective when they are integrated with individual, supervisory, and organizational values. An implication is that values are important, worth considering, and should be backed with adequate resources at each level.

Recommendations for Future Research

Two promising directions for burnout research focused on project managers are investigation of the environmental variables related to its onset and assessment of the outcomes associated with its incidence. Numerous studies in both spheres have been made of various work environments and professions, but not of project managers. Assessment of environmental variables includes factors such as perceived work load, social support, role conflict, and resource support. Concerning workplace outcomes, carrying this research further could involve investigating burnout's correlation with project manager attitudes and performance indicators, including absenteeism, intention to leave, and commitment. Previous studies have assessed whether organizational environments are supportive of project managers, but with a focus on work processes

rather than stress levels and intrinsic motivation (Belassi, Kondra, & Tukel, 2007; Drouin, Bourgault, & Saunders, 2009; Eskerod & Skriver, 2007).

Further research into the relationship between the burnout syndrome and satisfaction of intrinsic needs is also warranted. Exploration in this area would help deepen the understanding of the causes of burnout as well as appropriate workplace remedies. Further research and theory development could also explore and clarify the relationships between the concepts of burnout, engagement, and motivation. The current study used the three-dimension burnout model for a general work environment that includes cynicism as one dimension. The model directed towards human services workers replaces cynicism with depersonalization, and might find a closer relationship with the self-determination need for relatedness. One criticism of the Maslach Burnout Inventory is that the reverse-scoring of the efficacy scale does not accurately provide a measure of inefficacy because the lack of a symptom (e.g. feelings of effectiveness) does not necessarily imply the presences of its opposite (Bres, Salanova, & Schaufeli, 2007). The use of a scale that purposely measured inefficacy through the use of positively and negatively worded questions, such as the Utrecht Worker Engagement Scale, could provide a more meaningful contrast with the need for competence (Schaufeli & Bakker, 2004). Engagement and burnout are sometimes indentified as opposites in the burnout literature, while a self-determination theory perspective might view burnout as a type of amotivation, and engagement as an aspect of intrinsic motivation. Additional analysis of burnout, engagement, and intrinsic motivation could build unity and clarification and help identify practical actions to both increase engagement/motivation and remedy burnout/amotivation.

The limitations associated with the one-shot, cross sectional method used in this study imply another set of recommendations for future research. A larger sample, drawn from across a variety of project management industries, would improve the gerneralizability of results and possibly reveal whether project managers in different business sectors experience consistent levels of burnout and needs fulfillment. Longitudinal studies that track burnout levels within organizations and/or work teams are rare in the burnout literature and lacking for project management. While the instruments used to measure burnout and needs fulfillment in this study were validated in earlier research, future qualitative research to assess the accuracy of the burnout and intrinsic needs constructs in the project management domain would also be appropriate. Also, future research including a larger, normal sample might avail itself of more powerful parametric statistical methods. A post-hoc Pearson's (i.e. parametric) regression analysis of this study's data suggested stronger relationships between burnout and intrinsic needs fulfillment than were included in the study's data analysis or assessments. Future research that could use that method might find more significant relationships along with improved confidence intervals and levels.

Given the diverse nature of project manager personal characteristics, further burnout studies that include gender, race, and ethnicity as variables would be valuable. Inclusion of individual personal characteristics is rare in the burnout literature, and no intrinsic motivation research including demographic variables was located for the literature review. Given the increasing transnational nature of project management work, lowering burnout by encouraging diversity could be a fruitful area of project management burnout research.

Concluding Observations

This study explored the incidence of burnout in project managers and assessed their level of intrinsic motivation. The results indicated that a significant portion of project managers may experience high levels of burnout. As advancements in the rate of technological development, especially information technology, drive the pace of business change temporary, virtual, and transcultural organizations are becoming more the norm. Organizations built around a project management model are especially suited to adapt to these conditions with project managers as the focal point of business operations. Questions about the health and satisfaction of the project management discipline will continue to be important to individuals and their organizations.

In addition to the most widely studied conceptualization of burnout, with exhaustion as the main component, other varieties have been identified. In contrast to the over-exertion and exhaustion associated with "classic" burnout, under challenging, tedious, and unrewarding environment can also lead to feelings of hopelessness and frustration directed towards work (Farber, 1998; Berglas, 2001). These additional burnout categories, with causes rooted in feelings of lost autonomy and scant opportunities to demonstrate mastery, are as conceptually related to self-determination theory as the "classic" variety. Inclusion of a psychological drives theory like self-determination theory in the investigation of burnout helps deepen the understanding of why persons experience distress and what methods are useful for burnout avoidance in a variety of environments.

A tool for technical problem solving in project management is the root cause analysis, a method which seeks to identify underlying, original causes for problems and

shortcomings. The method is aimed at treating causes rather than symptoms, especially for problems that are similar but arise under different conditions (Bellinger, 2004), and is applied by repeatedly asking how and why a condition has arisen. In the case of burnout, a simplified hypothetical application might be pursued as follows: A person is experiencing burnout: why? They are exhausted. Why did exhaustion lead to burnout? According to job demand-resource theory, their energy reserves were depleted beyond replenishment and they saw no remedy for the situation. Why was this important? Because, according to self-determination theory, their innate need for autonomy was overwhelmed by helplessness resulting in a state of amotivation. Instead of being volitional partners in their environments, the burnout sufferer was overwhelmed by external demands and motives. How did these needs arise? They are evolutionary outcomes, related to values, aptitudes, and behaviors that promote survival, success, and well being. Because they are intrinsic to our being, they help describe who we are. Continued research leading to better understanding of our natures, and the conditions that promote well being, is also a step toward alleviating environments that detract from satisfaction and health.

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