

Work and Family Stress and Well-Being:
An Integrative Model of Person-Environment Fit
Within and Between the Work and Family Domains

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In recent years, a growing body of research has examined the interconnections between work and family (Burke & Greenglass, 1987; Eckenrode & Gore, 1990; Edwards & Rothbard, 2000; Zedeck, 1992). This research has been stimulated by contemporary societal changes impacting work and family roles, such as the influx of women into the work force, the increased prevalence of dual-earner couples, movement away from traditional gender-based family roles, and evidence debunking the myth that work and family are separate (Burke & Greenglass, 1987; Lambert, 1990; Voydanoff, 1987). This research has shed light on how structural and social aspects of work and family are related to perceived conflict between these two domains, how perceived conflict is related to satisfaction, well-being, and functioning in both domains, and how these relationships are influenced by individual differences, coping resources, and the availability of social support (Burke & Greenglass, 1987; Eckenrode & Gore, 1990; Greenhaus & Beutell, 1985; Voydanoff, 1987).

The growing body of empirical work-family research has generated the need to develop theories to organize existing evidence and guide further inquiry (Burke & Greenglass, 1987; Greenhaus, 1989; Near, Rice, & Hunt, 1980; Voydanoff, 1989). Several investigators have brought theoretical rigor to work-family research by drawing from theories in other areas, such as stress research (Eckenrode & Gore, 1990; Frone, Russell, & Cooper, 1992; Grandey & Cropanzano, 1999; Greenhaus & Parasuraman, 1986; Higgins, Duxbury, & Irving, 1992; Kopelman, Greenhaus, & Connolly, 1983; Martin & Schermerhorn, 1983). As noted by Greenhaus (1989), viewing work-family research from a stress perspective is useful because it allows researchers to draw from an established paradigm. The stress paradigm is particularly appropriate for work-family research, given that many constructs (e.g., situational stressors, conflict, well-being, coping, social support) are common to both areas of inquiry.

Theories of stress may also benefit from incorporating concepts developed in work-

family research. For example, studies of work and family have identified various mechanisms that link the two domains, such as spillover, compensation, and segmentation (Burke & Greenglass, 1987; Kabanoff, 1980; Edwards & Rothbard, 2000; Lambert, 1990; Staines, 1980; Voydanoff, 1989). In contrast, stress research has focused on experiences within the work or nonwork domains, devoting little attention to mechanism that link work and family experiences or how these experiences combine to influence health and well-being (Bhagat, 1983; Cooper & Marshall, 1976; Greenhaus & Parasuraman, 1986). Incorporating these mechanisms into stress research is important, given that experiences in one life domain may create stress in other domains (Greenhaus & Beutell, 1985), and many outcomes of interest in stress research, such as mental and physical health, are the culmination of stressful experiences across domains.

One potentially useful framework for integrating stress and work-family research is person-environment (P-E) theory (Edwards, Caplan, & Harrison, 1998; French, Caplan, & Harrison, 1982; French, Rodgers, & Cobb, 1974). P-E fit theory states that stress arises not from the person or environment separately, but rather from misfit between the person and environment. This basic premise underlies numerous theories of stress and well-being in the organizational and psychological literatures (Diener, 1984; Edwards, 1992; Lazarus & Folkman, 1984; McGrath, 1976; Rice, McFarlin, Hunt, & Near, 1985; Schuler, 1980). The primary contribution of P-E fit theory is that it provides an explicit and systematic framework for understanding how person and environment factors combine to produce stress. P-E fit theory also underscores the notion that stress not only influences well-being but also stimulates efforts to resolve misfit or dampen its effects (Edwards et al., 1998; French et al., 1982). Despite its value and central position in stress research, the concept of P-E fit has not been applied to stress and well-being in work-family research.

The purpose of this chapter is to present a theoretical model that applies P-E fit to stress

and well-being associated with work and family. The model builds on P-E fit theory (Edwards et al., 1998; French et al., 1982) by describing how fit can be conceptualized in parallel terms for work and family and how person and environment constructs can be linked across work and family. The model also extends existing models of stress in work-family research by using principles of P-E fit to clarify how the person and environment combine to produce stress, the role of cognitive appraisal in this process, and the effects of coping on stress and well-being.

This chapter is organized as follows. First, we summarize and evaluate models of stress in work-family research. Next, we discuss principles of P-E fit theory to establish a foundation for applying the theory to work and family. We then outline the proposed model, which explains how P-E fit processes can operate concurrently in work and family, how these processes relate to stress and well-being associated with work, family, and life as a whole, and how conceptualizing P-E fit theory in terms of work and family can explain mechanisms that link these two domains, such as spillover, compensation, and work-family conflict.

Models of Stress in Work-Family Research

As previously noted, many constructs in work-family research are prominent in theories of stress. Several investigators have proposed models that bridge these two literatures. For example, Kopelman et al. (1983) applied role stress theory (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964) to develop a model relating work conflict, family conflict, and interrole conflict to satisfaction with work, family, and life as a whole. This model was elaborated by Higgins et al. (1992), who added work expectations and job involvement as predictors of work conflict and family expectations and family involvement as predictors of family conflict. Frone et al. (1992; Frone, Yardley, & Markel, 1997) extended this work by distinguishing two forms of work-family conflict, one in which work interferes with family and another in which family interferes with work. Greenhaus and Parasuraman (1986) developed a work-nonwork interactive model that

adopted a definition of stress as a psychological state in which a person is faced with demands, constraints, or opportunities with important but uncertain outcomes (Beehr & Bhagat, 1985; Schuler, 1980). Eckenrode and Gore (1990) presented a model that relates role stressors, role functioning, and coping resources to well-being within work and family and connects these concepts between work and family. These models typify the treatment of stress in work-family research and incorporate key features of other models in the literature (e.g., Adams, King, & King, 1996; Aryee, Luk, Leung, & Lo, 1999; Bacharach, Bamberger, & Conley, 1991; Bedeian, Burke, & Moffett, 1988; Bhagat, McQuaid, Lindholm, & Segovis, 1985; Burke, 1986; Cooke & Rousseau, 1984; Grandey & Cropanzano, 1999; Kline & Cowan, 1989; Martin & Schermerhorn, 1983; Rice, Frone, & McFarlin, 1992).

Models of work and family stress have established important connections between the work-family and stress literatures and have spawned a growing body of research. Nonetheless, a critical examination of these models reveals several issues that merit attention. One such issue is the definition of stress itself. The meaning of stress has generated considerable debate in the stress literature (Edwards, 1992; Lazarus & Folkman, 1984; McGrath, 1970; Parker & DeCotiis, 1983; Schuler, 1980; Shirom, 1982). This debate has not been engaged by models of work and family stress. Rather, these models typically omit a definition of stress (e.g., Eckenrode & Gore, 1990; Frone et al., 1992; Higgins et al., 1992; Kopelman et al., 1983) or adopt a definition without evaluating it against alternative definitions (e.g., Grandey & Cropanzano, 1999; Greenhaus & Parasuraman, 1986). The definition of stress is critical, as it positions a model of stress within the broader stress literature, provides the basis for explaining how stress relates to its causes and consequences, and determines how stress should be operationalized.

A second issue is the role of cognitive appraisal in the stress process. Cognitive appraisal refers to the evaluation of the environment relative to salient personal standards (e.g., values, goals,

commitments) to determine whether the environment is harmful or beneficial to the person (Lazarus & Folkman, 1984). Cognitive appraisal is prominent in theories of stress (Edwards, 1992; French et al., 1982; Lazarus & Folkman, 1984; Schuler, 1980) but has received little attention in models of stress in work-family research. Some of these models indicate that individual differences, such as demographics, personality, or role involvement, influence the stress process (e.g., Eckenrode & Gore, 1990; Frone et al., 1992; Grandey & Cropanzano, 1999; Greenhaus & Parasuraman, 1986; Higgins et al., 1992). Although individual differences may influence cognitive appraisal, they do not capture cognitive appraisal itself. Cognitive appraisal is implied by person-role conflict (Kopelman et al., 1983) and perceived stress (Greenhaus & Parasuraman, 1986), but the models that contain these concepts do not include the variables involved in the cognitive appraisals that these concepts imply. For example, the Greenhaus and Parasuraman (1986) model includes perceived stress but not the variables ostensibly involved in the cognitive appraisal of stress (i.e., demands, constraints, opportunities, importance, uncertainty). Models of work and family stress would benefit from including variables that underlie the cognitive appraisal of stress, because doing so would allow researchers to examine the underlying causes of stress and how they relate to coping, well-being, and other variables involved in the stress process.

A third issue concerns the role of coping in the stress process. Few models of work-family stress address coping, and those that do indicate that coping influences strain directly or by moderating the effects of stressors on strain (e.g., Aryee et al., 1999; Burke, 1993; Eckenrode & Gore, 1990; Greenhaus & Parasuraman, 1986). Notably missing from these models are linkages from coping to the root causes of stress (Edwards, 1988). These linkages are evident in coping research, which distinguishes between coping efforts directed toward the situation (i.e., problem-focused coping) or the person (i.e., emotion-focused coping), with the latter including efforts to reappraise the situation and manage emotional reactions (Edwards, 1988; Kahn et al., 1964; Lazarus

& Folkman, 1984; Pearlin & Schooler, 1978). Although models of work-family stress sometimes include linkages from coping to emotional reactions (Greenhaus & Parasuraman, 1986), they omit linkages from coping to the situational and personal sources of stress.

A final issue is how models of work-family stress incorporate mechanisms that link work and family (Edwards & Rothbard, 2000). The linkages most prevalent in these models is work-family conflict (Bacharach et al., 1991; Bedeian et al., 1988; Cooke & Rousseau, 1984; Higgins et al., 1992; Kopelman et al., 1983; Rice et al., 1992), which is sometimes separated into work interfering with family and family interfering with work (Adams et al., 1996; Aryee et al., 1999; Frone et al., 1992, 1997; Grandey & Cropanzano, 1999). Some models also include paths that connect stressors or coping resources between work and family (Eckenrode & Gore, 1990; Greenhaus & Parasuraman, 1986). Although these linkages are important, they represent a limited subset of the linking mechanisms discussed in the work-family literature (Burke & Greenglass, 1987; Edwards & Rothbard, 2002; Lambert, 1990). For example, spillover may transmit stress between work and family, and compensation may represent efforts to cope with stress in one domain by seeking fulfillment in the other domain (Edwards & Rothbard, 2000). Thus, models of work and family stress may be strengthened by including a broader array of work-family linking mechanisms, many of which have clear implications for stress, coping, and well-being.

In sum, models of stress in work-family research have made important contributions by integrating the stress and work-family literatures and by advancing our understanding of work and family stress and well-being. These models provide a useful platform for theory development that draws further from stress research and addresses the issues summarized above. The P-E fit model outlined in this chapter builds on existing models of work-family stress by incorporating their key strengths and addressing issues concerning the meaning of stress, the operation of cognitive appraisal and coping, and work-family linking mechanisms relevant to the stress process.

Person-Environment Fit Theory of Stress

To establish a foundation for the model we develop, we first summarize the principles of P-E fit theory. The origins of P-E fit theory can be traced to Murray (1938) and Lewin (1951), and formal statements of the theory have been presented by French et al. (1974, 1982), Harrison (1978, 1985), Caplan (1983, 1987), and Edwards et al. (1998). These sources provide the basis for the following summary.

Principles of P-E Fit Theory

As stated earlier, P-E fit theory indicates that stress arises from misfit between the person and environment. The core elements of P-E theory are shown in Figure 1, which captures three key distinctions in P-E fit theory. The first distinction is between the person and environment, as depicted in the lower and upper portions, respectively, of Figure 1. The second distinction is between the objective and subjective person and environment. The *objective person* refers to attributes of the person as they actually exist, whereas the *subjective person* is how these attributes are perceived by the person. Likewise, the *objective environment* refers to situations and events as they exist in reality, and the *subjective environment* is the person's perception of situations and events. As shown in Figure 1, the objective person affects the subjective person and, likewise, the objective environment influences the subjective environment. The subjective person and environment are imperfect representations of their objective counterparts due to selective attention, perceptual distortion, and barriers to information access and processing (Harrison, 1978).

The distinctions between the objective and subjective person and environment combine to yield four types of fit between person and environment constructs: (1) *objective P-E fit*, which is the fit between the objective person and environment; (2) *subjective P-E fit*, or the fit between the subjective person and environment; (3) *contact with reality*, meaning the correspondence

between the objective and subjective environment; and (4) *accuracy of self-assessment*, representing the match between the objective and subjective person (Caplan, 1983; French et al., 1974; Harrison, 1978).

As indicated by Figure 1, P-E fit theory proposes that subjective P-E fit is the proximal cause of strains and illness. Hence, these outcomes should not be affected by objective P-E fit unless it is perceived by the person and thus translated into subjective P-E fit (French et al., 1982; Harrison, 1985). This proposition does not disregard the relevance of the objective person and environment or the importance of contact with reality and accurate self-assessment (French et al., 1974; Harrison, 1978; Hobfoll, 1998). For instance, if an individual accurately perceives the objective person and environment, he or she can take appropriate action to enhance objective P-E fit and, by doing so, improve subjective P-E fit. On the other hand, when an individual is confronted with overwhelming stressors, he or she might benefit from some disengagement from the objective situation, given that distancing or denial can dampen initial anxiety and ultimately facilitate adaptation (Caplan, 1983; Lazarus, 1983). Hence, all four types of fit shown in Figure 1 are relevant to health and illness, but subjective P-E fit is the critical pathway through which the person and environment combine to influence strain and illness.

A third and final distinction in Figure 1 entails two types of P-E fit. The first type involves the demands of the environment and the abilities of the person. *Demands* are quantitative and qualitative requirements, expectations, and social norms experienced by the person, and *abilities* are skills, competencies, time, and energy of the person that pertain to these demands. The second type of P-E fit concerns the needs of the person and the supplies in the environment relevant to the person's needs. *Needs* include innate biological and psychological drives, values acquired through learning and socialization, and motives to achieve desired states, ends, or goals. *Supplies* are extrinsic and intrinsic resources and rewards that pertain to the

person's needs, such as food, shelter, money, status, companionship, variety, and so forth.

According to P-E fit theory, the person and environment constructs involved in needs-supplies fit and demands-abilities fit must be commensurate, meaning that they refer to the same content dimension (French et al., 1982; Harrison, 1978). For instance, demands-abilities fit involving family responsibilities is gauged by comparing the responsibilities imposed by the family to the person's ability to meet those responsibilities. Analogously, needs-supplies fit for job security involves comparing the amount of job security the person wants to the amount of security offered by the person's job. Commensurate dimensions are essential because the degree of P-E fit can be determined only if the person and environment refer to the same concept and are assessed on the same scale. For example, demands-abilities fit for family responsibilities can be expressed in terms of required and available hours, and needs-supplies fit for job security can refer to desired and actual stability of employment. Thus, commensurate dimensions establish a common conceptual metric for the person and environment and allow meaningful assessment of their degree of fit.

Outcomes of P-E Fit

According to P-E fit theory, subjective P-E misfit leads to two sets of outcomes. One set of outcomes includes strains and illness, which were previously highlighted as consequences of subjective P-E fit. *Strains* are deviations from normal psychological, physical, and behavioral functioning (French et al., 1982; Harrison, 1978). Psychological strains include dissatisfaction, anxiety, dysphoria, and other forms of negative affect. Physiological strains include high blood pressure, elevated serum cholesterol, compromised immune system functioning, and other symptoms of poor physical health. Behavioral strains include smoking, overeating, absenteeism, and frequent utilization of health care services. The cumulative experience of strains over time can lead to mental and physical *illnesses* such as chronic depression, hypertension, coronary

heart disease, peptic ulcer, and cancer. Conversely, sustained good P-E fit can produce positive mental and physical health outcomes (Edwards & Cooper, 1988; Harrison, 1978, 1985).

A second set of outcomes involves efforts to resolve P-E misfit, which are labeled coping and defense in Figure 1. *Coping* signifies efforts to improve objective P-E fit by changing the objective environment (i.e., environmental mastery) or the objective person (i.e., adaptation). For example, a person experiencing excess work demands may seek training to improve his or her ability to meet work demands or seek reassignment to a job with more manageable demands (Harrison, 1978). *Defense* involves efforts to enhance subjective P-E fit by changing the perceived person and environment without affecting their objective counterparts. Defense includes various forms of cognitive distortion (e.g., selective perception, repression, denial) and attempts to reprioritize dimensions that are sources of misfit, as when an individual decides that an unattainable goal is not worth pursuing (Klinger, 1975). For instance, in response to excess work demands, a person may inflate perceptions of his or her abilities, reinterpret or ignore work demands, or decide that fulfilling work demands is less important than other life pursuits, such as nurturing a positive family life. The choice between different methods of coping and defense is influenced by person and environment factors such as individual traits, styles, and preferences and by situational opportunities, resources, and constraints.

Although the term stress does not appear in Figure 1, it is explicitly defined by P-E fit theory (Edwards et al., 1998; Harrison, 1978). According to P-E fit theory, stress occurs when: (1) the environment does not provide adequate supplies to meet the person's needs; or (2) the abilities of the person fall short of demands that are instrumental to receiving supplies. Hence, stress results from P-E misfit when supplies fall short of needs or when demands exceed abilities, provided that meeting demands would help fulfill the needs of the person. Stress arises from subjective rather than objective P-E misfit, given that subjective P-E misfit is the link from the

person and environment to strain, illness, coping, and defense (French et al., 1982; Harrison, 1985). Contrary to some conceptualizations of stress (McGrath, 1976; Shirom, 1982), P-E fit theory asserts that excess demands produce stress only when meeting demands yields valued supplies or when demands have been internalized as desires or goals, as when a person adopts role expectations as guidelines for his or her own behavior. Thus, P-E fit theory defines *stress* as *a subjective appraisal indicating that supplies are insufficient to fulfill the person's needs*, with the provision that insufficient supplies may result from unmet demands (Edwards et al., 1998). Defining stress in terms of needs-supplies fit avoids problems with definitions that frame stress as stressors in the environment (Cooper & Marshall, 1976) or strain experienced by the person (Parker & DeCotiis, 1983), both of which have important conceptual shortcomings (Edwards, 1992; Lazarus & Folkman, 1984; McGrath, 1970).

Relationships Between P-E Fit and Outcomes

Initial presentations of P-E fit theory framed the effects of fit in two dimensions, with the horizontal axis representing P-E misfit and the vertical axis signifying strain (French et al., 1974; French et al., 1982; Harrison, 1978). These effects are illustrated in Figure 2, which depicts the effects of needs-supplies fit on strain. Figure 2a shows a *monotonic* function in which strain decreases as supplies increase toward needs and continues to decrease as supplies exceed needs. Figure 2b shows an *asymptotic* function where strain decreases as supplies increase toward needs but levels off as supplies exceed needs. Finally, Figure 2c depicts a *parabolic* function in which strain increases as supplies deviate from needs in either direction. Each of these functions indicates that deficient supplies increase strain, but they differ regarding the effects of excess supplies, such that strain decreases, levels off, or increases for the monotonic, asymptotic, and parabolic functions, respectively. P-E fit theory describes an analogous set of functions for demands-abilities fit in which strain increases as demands exceed abilities but decreases, levels

off, or increases as demands fall short of abilities (Edwards et al., 1998; Harrison, 1978). For reasons stated earlier, these effects of demands-abilities fit on strain should occur only when meeting demands yields valued supplies or demands have been internalized as desires or goals.

Although the functions in Figure 2 represent an intuitive approach to conceptualizing the effects of P-E misfit, they reduce the inherently three-dimensional relationship between the person, the and environment, and strain to two dimensions. This point is demonstrated by Figure 3, which shows three-dimensional surfaces that correspond to the two-dimensional functions in Figure 2. Underneath each surface is a grid that depicts various combinations of needs and supplies. The solid line running diagonally from the front to the back of the grid is the *fit line*, which comprises all values where needs and supplies are equal. The dashed line that runs diagonally from left to right across the grid is the *misfit line*, which captures the discrepancy between needs and supplies.¹

Comparing Figures 2 and 3 shows that conceptualizing P-E fit in two dimensions entails several key assumptions. First, it is assumed that the person and environment have equal but opposite effects on strain. This assumption is evident in the scale for needs-supplies fit in Figure 3, which represents the algebraic difference between supplies and needs. When a concept is conceived as an algebraic difference between two constructs, it disregards the possibility that the effects of the constructs differ in magnitude. Likewise, when an algebraic difference is used as a predictor, the variables that constitute the difference are forced to have equal but opposite effects on outcomes (Edwards, 1994). Studies testing this assumption have shown that the effects of supplies usually outweigh those of needs (Edwards, 1994, 1996; Edwards & Harrison, 1993; Edwards & Rothbard, 1999; Hesketh & Gardner, 1993; Livingstone, Nelson, & Barr, 1997; Rice, Peirce, Moyer, & McFarlin, 1991; Taris & Feij, 2001).

Second, the two-dimensional view incorporates the assumption that the level of strain is

unaffected by the absolute levels of the person and environment, given that fit only takes into account the person relative to the environment. This assumption is depicted by the surfaces in Figure 9, each of which indicates the same amount of strain along the fit line regardless of the absolute levels of needs and supplies. From a conceptual standpoint, this assumption disregards the possibility that strain may be lower when needs and supplies are both high than when both are low, as when a person wants and obtains a job rich in rewards. Empirically, this assumption has been rejected by studies showing that, along the fit line, strain often decreases as needs and supplies both increase (Edwards, 1996; Edwards & Harrison, 1993; Edwards & Rothbard, 1999).

A third and related assumption is that the shape of the relationship between misfit and strain is unaffected by the absolute levels of the person and environment. This assumption is evident in Figure 3c, which shows that the minimum of the parabolic function is centered along the fit line regardless of the absolute levels of needs and supplies. Theoretically, this assumption disregards the possibility that the optimal degree of P-E fit may depend on whether the person and environment are both high or low. For instance, when demands and abilities are low, excess demands may be optimal because they provide opportunities for growth and skill development. Conversely, when demands and abilities are high, deficient demands may be optimal because they allow respite from striving to fulfill taxing demands. Studies have challenged this assumption by showing that, at low levels of needs and supplies, strain is minimized when supplies exceed needs, whereas at high levels at needs and supplies, strain is minimized when supplies are less than needs (Edwards, 1996; Edwards & Harrison, 1993).

Complexities that can be accommodated by conceptualizing the effects of P-E fit in three dimensions were anticipated during the development of P-E fit theory (Caplan, 1983; Harrison, 1978), and attempts to assess these complexities were undertaken in unpublished work (Caplan & Harrison, 1993). Nonetheless, these complexities were concealed by methods available at the

time P-E fit theory was developed, which relied on difference scores that reduced the effects of P-E fit on strain to two dimensions (Caplan, Cobb, French, Harrison, & Pinneau, 1980; French et al., 1982). The three-dimensional view relaxes the assumptions of the two-dimensional approach and better captures the complexity of P-E fit theory. Empirical research that incorporates the three-dimensional view has been facilitated by recent methodological developments that replace difference scores with polynomial regression and response surface methodology, which can be used to test hypotheses regarding the shapes of surfaces such as those in Figure 3 (Edwards, 1994, 2002; Edwards & Parry, 1993).

The transition to the three-dimensional view of P-E fit has been accompanied by the development and refinement of conceptual principles to predict the shape of the relationship between P-E fit and strain. Most research within the general paradigm of P-E fit is based on the premise that fit is beneficial and misfit is harmful (Edwards, 1991; Kristof, 1996; Spokane, Meir, & Catalano, 2000). This premise is captured by Figure 2c, which shows that strain is minimized when needs and supplies are equal and increases as needs and supplies differ in either direction. Some theories describe other relationships between P-E fit and outcomes (Locke, 1976; Rice et al., 1985), such as the monotonic, asymptotic, and parabolic relationships identified by P-E fit theory (French et al., 1974; French et al., 1982; Harrison, 1978). However, these theories treat the alternative relationships between P-E fit and outcomes not as hypotheses, but instead as possibilities. Consequently, results can be declared consistent with P-E fit theory regardless of which relationship is found. This situation is undesirable, as it effectively treats the relationship between P-E fit and outcomes as exploratory, which means that P-E fit theory is not subjected to formal testing and falsification.

Hypotheses regarding the relationship between P-E fit and outcomes can be developed using principles organized around four mechanisms that explain the monotonic, asymptotic, and

parabolic functions (Edwards, 1996; Edwards et al., 1998; Edwards & Rothbard, 1999). To illustrate, consider the functions relating needs-supplies fit and strain in Figure 3. For all three functions, strain is predicted to decrease as supplies increase toward needs. This prediction is based on the premise that deficient supplies create tension, negative affect, and other forms of strain, and these strains are ameliorated when supplies increase to fulfill needs (Diener, 1984; Murray, 1938). The functions differ for the effects of excess supplies, with the monotonic, asymptotic, and parabolic functions predicting negative, null, and positive relationships with strain, respectively. The monotonic function can be explained by two principles. The first is termed *carryover*, which means that excess supplies on one dimension can be used to achieve needs-supplies fit on other dimensions. For example, if a person's basic need for control is fulfilled, excess supplies for control may be used to modify the environment to achieve needs-supplies fit on other dimensions. The second principle is *conservation*, where excess supplies on a dimension can be saved to achieve needs-supplies fit on the same dimension in the future. For instance, income that exceeds a person's basic material needs can be saved to ensure monetary needs-supplies fit at a later time. Carryover and conservation both predict that excess supplies will decrease strain, resulting in the monotonic function shown in Figure 3a.

Two complementary principles can be used to explain the parabolic function in Figure 3c. One principle is *interference*, whereby excess supplies on one dimension interfere with needs-supplies fit on another dimension. Harrison (1978) illustrates this principle using contact with coworkers, whereby supplies that exceed a person's need for affiliation can interfere with his or her need for privacy. Another principle is *depletion*, in which excess supplies on a dimension reduce the availability of supplies on that dimension in the future. For example, an employee who solicits excess support from a supervisor can reduce the willingness of the supervisor to provide needed support at a later date. Interference and depletion predict that excess supplies

will increase strain, producing the parabolic function in Figure 3c. When excess supplies are not subject to carryover, conservation, interference, or depletion, then the asymptotic function in Figure 3b is predicted, which results when excess supplies do not increase or decrease needs-supplies fit on other dimensions and do not promote or inhibit future needs-supplies fit on the same dimension.

The principles of carryover, conservation, interference, and depletion can also be applied to demands-abilities fit to explain the effects of deficient demands (Edwards, 1996). As noted earlier, P-E fit theory predicts that strain increases as demands exceed abilities but may decrease, level off, or increase as abilities exceed demands, which respectively yield monotonic, asymptotic, or parabolic relationships between demands-abilities fit and strain (French et al., 1982; Harrison, 1978). Excess abilities can decrease strain due to carryover, as when abilities that exceed a particular demand can be used to fulfill other demands. For example, a person who is able to fulfill role demands in less time than required can apply the remaining time to other demands. Excess abilities can also decrease strain when they can be conserved, as exemplified by reserving energy that exceeds a current demand to meet that demand in the future. Carryover and conservation both indicate that excess abilities reduce strain, indicating a monotonic function between demands-abilities fit and strain. Conversely, abilities that exceed one demand may interfere with the fulfillment of other demands, as when developing and maintaining skills beyond current job demands prevents the attainment of skills needed to meet other demands. Excess abilities may also create depletion, as when abilities that are untapped by demands atrophy, making it more difficult to meet future demands (McGrath, 1970). Interference and depletion increase strain, producing a parabolic relationship between demands-abilities fit and strain. If excess abilities are not subject to carryover, conservation, interference, or depletion, then excess abilities would be unrelated to strain, yielding an asymptotic relationship between

demands-abilities fit and strain. Again, this reasoning is based on the premise that meeting demands will bring valued supplies or that demands are internalized as desires or goals.

Carryover, conservation, interference, and depletion entail the shape of the surface along the misfit line. P-E fit research based on the three-dimensional view also addresses the shape of the surface along the fit line (Edwards, 1996; Edwards & Harrison, 1993; Edwards & Rothbard, 1999; Livingstone et al., 1997). For instance, Edwards and Rothbard (1999) reasoned that strain would be lower when needs and supplies are both high than when both are low, based on the notion that high needs coupled with high supplies signifies the attainment of ambitious goals. Meeting such goals yields a sense of accomplishment that itself can fulfill needs regarding growth, mastery, and self-actualization (Harrison, 1978; White, 1959). Analogously, when high demands and coupled with high abilities, the person is able to meet extreme role requirements, which can also produce feelings of accomplishment as well as rewards and approval from role senders. This reasoning rests on the premise of *metafit*, whereby attaining needs-supplies fit or demands-abilities fit on one dimension constitutes a supply for needs on other dimensions.

Using P-E Fit Theory to Explain Work and Family Stress

Because P-E fit theory is expressed in general terms, it can be used to study stress in a wide range of situations. In this section, we describe how P-E fit theory can be used to examine stress associated with work and family. To this end, we show how constructs from P-E fit theory can be characterized in terms of work and family, discuss how P-E fit theory can explain stress within work and family, and demonstrate how parallel conceptions of P-E fit in work and family provide a platform for understanding work-family linkages that shed light on work stress, family stress, and their combined effects on strain and illness.

The following discussion is organized around the model in Figure 4. This model depicts parallel versions of the general P-E fit model shown in Figure 1 for work and family. For the

purposes of this model, we treat work and family in a broad sense, such that work entails instrumental activity intended to provide goods and services to support life and family comprises persons related by biological ties, marriage, social custom, or adoption (Edwards & Rothbard, 2000; Piotrkowski, Rapoport, & Rapoport, 1987). The boundary between the work and family versions of the model contains work-family linking mechanisms, which represent a range of processes that connect constructs in the work and family domains. After presenting the model, we discuss linking mechanisms that are particularly relevant to work and family stress.

Applying Constructs From P-E Fit Theory to Work and Family

The constructs that constitute P-E fit theory can be conceptualized in terms of work and family, as indicated by the model in Figure 4. Work demands may refer to task requirements, managing subordinates, and other expectations entailed by the work role. Likewise, family demands may include household chores, caring for children, and other family role expectations. Work and family abilities are conceptualized as commensurate with these demands, such that demands-abilities fit would entail the comparison between demands and abilities for work or family on a single content dimension (e.g., demands and abilities for work task requirements or household chores). At a general level, some demands and abilities may be conceptualized as commensurate across work and family. For instance, work task requirements and household chores can be framed as quantitative or qualitative work load, and managing subordinates and child care can be framed as responsibility for others. At this level, the effects of demands-abilities fit can be compared across work and family. This general approach can be complemented by a more fine-grained approach that captures qualitative differences between work and family demands and the abilities required to meet these demands.

Needs and supplies can also be distinguished between work and family. Work needs include intrinsic job characteristics, extrinsic rewards, and relationships with peers, coworkers,

and supervisors. Family needs include companionship, intimacy, emotional support, and the desire to raise children. These needs are compared to commensurate supplies to determine the degree of needs-supplies fit (e.g., whether extrinsic rewards from work or emotional support from the family exceed or fall short of their corresponding needs). Like demands and abilities, some needs and supplies can be conceived in general terms such that they are commensurate across work and family. Examples of such needs and supplies include autonomy, security, and relationships with others, each of which can refer to work or family. When the same need and supply dimensions are used for work and family, the effects of needs-supplies fit for work and family can be compared (Edwards & Rothbard, 1999). Again, this general approach can be usefully accompanied by research that delves into specific needs and supplies that are unique to work and family, thereby capturing similarities and differences in the effects of needs-supplies fit for the two domains.

Other constructs that constitute P-E fit theory can also be conceptualized in parallel terms for work and family. For instance, some forms of psychological strain, such as dissatisfaction and negative affect, can refer to either work or family. Likewise, certain behavioral strains, such as smoking and absenteeism, can be exhibited in either the work domain or family domain. Other psychological and behavioral strains, such as anxiety and using health care services, are usually conceived as general outcomes that are not specific to a particular life domain. Likewise, most physiological strains and health outcomes are not specific to work or family but instead reflect the cumulative effects of misfit across life domains, including work and family. Thus, high blood pressure, elevated serum cholesterol, coronary heart disease, and cancer refer to the whole person and cannot be differentiated into work and family counterparts.

Coping and defense can be distinguished for work and family, given that efforts to change the objective or subjective person or environment can focus on either work or family

versions of these constructs. For example, coping with demands-abilities misfit at work can involve reducing job demands or increasing job-related skills, and coping with demands-abilities misfit associated with family can entail reducing parenting demands by using child care services or increasing parenting skills by reading books or seeking advice on child rearing. Likewise, defense may involve downplaying the demands of work or parenting, exaggerating one's skills and abilities regarding these demands, or some combination of these strategies. Similar distinctions between work and family also apply to coping and defense directed toward needs-supplies misfit. Although most forms of coping and defense are likely to be domain-specific, some forms can target the person or environment as a whole, transcending the work and family domains. For example, a person may acquire general skills in conflict resolution that help meet interpersonal demands for both work and family. Likewise, a person may reprioritize his or her life values to place less emphasis on material wealth, thereby reducing the perceived need for a high salary at work and a luxurious lifestyle for the family.

Effects of Work and Family P-E Fit on Outcomes

The effects of work and family P-E fit may be considered separately for each domain and in combination for both domains. We predict that the separate effects of P-E fit in each domain will follow the logic of P-E fit theory articulated earlier, given that this logic should apply to the effects of P-E fit in any life domain. Thus, for both work and family, strain should increase as supplies fall short of needs and may increase, remain constant, or decrease as supplies exceed needs. Likewise, strain should increase as demands exceed abilities and may increase, remain constant, or decrease as abilities exceed demands, assuming that meeting demands brings valued supplies or that demands are internalized as desires or goals. The effects of excess supplies and excess abilities on strain depend on carryover, conservation, interference, and depletion, as articulated earlier. Moreover, for both work and family, strain should decrease as supplies and

needs increase or as demands and abilities increase, given that achieving high aspirations or meeting high demands can create feelings of growth, mastery, and self-actualization.

We predict that the combined effects of work and family P-E fit on strain are additive, such that increased misfit in either domain will increase strain. This premise is consistent with existing models of work and family stress as well as with models that treat total life stress as a function of stress associated with multiple life domains (Bhagat et al., 1985). We further argue that the effects of work and family P-E fit on strain depend on the centrality, or importance, of work and family to the person's overall concept (Gecas & Seff, 1990). Centrality should increase the effects of P-E fit on strain because, as the centrality of a domain increase, misfit regarding that domain should pose a greater threat to the person's overall self-concept (Gecas & Seff, 1990; Locke, 1976; Rice et al., 1985). In this sense, centrality serves as a moderator of the effects of P-E misfit on strain. Moderating effects for domain centrality were observed by Edwards and Rothbard (1999), who studied needs-supplies fit on commensurate work and family dimensions with a sample of employees who rated family centrality substantially higher than work centrality. As expected, strain was more strongly related to needs-supplies fit for family than for work. This difference is illustrated in Figure 5, which shows surfaces relating needs and supplies for autonomy to dissatisfaction for work and family.² Both surfaces show asymptotic relationships between needs-supplies fit and dissatisfaction, such that dissatisfaction increases as supplies fall short of needs but remains essentially constant as supplies exceed needs. However, the overall slope of the surface is steeper for family than for work, consistent with the notion that the effects of needs-supplies fit on strain is stronger when domain centrality is higher. Edwards and Rothbard (1999) also tested the moderating effects of centrality within the work and family domains, using polynomial regression with domain centrality as a moderator variable. Some support was found for the moderating effects of domain centrality within the family domain,

although these effects were less pronounced than those for centrality between the work and family domains.

Linkages Between the Work and Family Domains

As noted earlier, models of work and family stress typically include linkages between work and family. These linkages distinguish models of work and family stress from general models of stress, which occasionally discuss the combined effects of stress from different life domains but rarely address linkages between domains (e.g., Bhagat et al., 1985; Rice et al., 1985). The parallel conceptions of P-E fit in work and family described here provide a useful platform for identifying linkages between work and family relevant to the stress process. These linkages can be identified using the framework presented by Edwards and Rothbard (2000), who isolated three basic features of linkages between work and family constructs: (a) *sign*, or whether an increase in one construct is associated with an increase or decrease in the other construct; (b) *causal structure*, which casts the relationship between work and family constructs as a direct effect, an indirect effect, or a spurious association due to a common cause; and (c) *intent*, or whether a work-family linkage is purposely created, modified, or eliminated by the person.

In principle, it is possible to consider linkages between work and family for each construct of P-E fit theory. The model in Figure 4 contains 12 constructs each in the work and family domains (i.e., strain, illness, coping, defense, and objective and subjective demands, abilities, needs, and supplies), and connecting these constructs across the two domains would yield 144 possible linkages. Addressing each of these linkages is well beyond the scope of this chapter and would produce a model that lacks any semblance of parsimony that makes theories useful (Popper, 1959; Weick, 1979). Instead, we focus on linkages that are relevant to the stress process, build on previous models of work and family stress, and are prominent in work-family research (Burke & Greenglass, 1987; Edwards & Rothbard, 2000; Lambert, 1990; Zedeck, 1992).

Work-family conflict. As noted previously, models of work and family stress often incorporate work-family conflict as a central feature (Adams et al., 1996; Aryee et al., 1999; Bacharach et al., 1991; Bedeian et al., 1988; Frone et al., 1992, 1997; Grandey & Cropanzano, 1999; Kopelman et al., 1983; Higgins et al., 1992). Work-family conflict is a form of interrole conflict in which work and family role demands are incompatible, such that meeting demands in one domain makes it difficult to meet demands in the other domain (Burke & Greenglass, 1987; Cooke & Rousseau, 1984; Greenhaus & Beutell, 1985). Greenhaus and Beutell (1985) identify three forms of work-family conflict, each of which can be explained using linkages between parallel constructs from P-E fit theory in work and family. *Time-based conflict* occurs when devoting time to the demands of one domain leaves insufficient time to meet the demands of the other domain. In P-E fit theory, time is an ability people can use to fulfill demands. Therefore, time-based conflict implies a negative relationship between work and family abilities, whereby an increase in work time decreases family time, and vice-versa. The negative relationship between work and family time is direct and intentional, driven by time allocation decisions of the person (Edwards & Rothbard, 2000). Time-based conflict further stipulates that drawing time from a domain leaves the demands of that domain unmet. This condition signifies demands-abilities misfit in which environmental demands exceed the abilities of the person. Hence, time-based conflict results from demands-abilities misfit in work and family whereby demands in a domain are unmet because time is shifted from that domain to the other domain.

A second form of work-family conflict described by Greenhaus and Beutell (1985) is *strain-based conflict*, which occurs when strain generated in one domain makes it difficult to meet demands in the other domain. Greenhaus and Beutell (1985) characterize strain as fatigue, tension, anxiety, depression, and irritability, each of which can reduce the ability of the person to meet role requirements. Hence, strain-based conflict implies that increased strain in one domain

reduces abilities in the other domain. The effect of strain on abilities may be direct or indirect, mediated by general forms of strain such as overall physical exhaustion (Edwards & Rothbard, 2000). Drawing from P-E fit theory, strain-based conflict would occur only when abilities fall below demands. Thus, strain-based conflict arises when strain in one domain reduces abilities in the other domain to the point that demands in that domain are unmet.

The third type of work-family conflict discussed by Greenhaus and Beutell (1985) is *behavior-based conflict*, which occurs when behaviors exhibited in one domain are incompatible with demands in the other domain and the person does not adapt his or her behavior when moving between domains. The behaviors described by Greenhaus and Beutell (1985) are manifestations of skills used by the person to fulfill role expectations. For instance, the work role may require skills that promote self-reliance, aggressiveness, and objectivity, whereas the family role may require skills that foster nurturing, warmth, and emotional expression (Eckenrode & Gore, 1990; Greenhaus & Beutell, 1985). In terms of P-E fit theory, behavior-based conflict implies a negative relationship between work and family abilities, such that abilities developed in one domain are inappropriately transferred to the other domain, reducing abilities to meet demands in that domain. This relationship can be direct or indirect, as when domain-specific skills become part of the person's general skill set before being applied to the other domain. The relationship can also be intentional, reflecting errant attempts to transfer skills, or unintentional, as when skills become ingrained as habits that inadvertently influence behavior across domains.

Viewing work-family conflict in terms of demands-abilities fit underscores three key points not captured by existing models work and family stress. First, existing models depict work-family conflict as an outcome of role demands (or stressors, depending on the terminology of the model; Frone et al., 1992; Grandey & Cropanzano, 1999; Higgins et al., 1992). P-E fit

theory emphasizes that role demands do not produce work-family conflict unless demands exceed the abilities of the person. Thus, abilities must be considered along with demands to explain work-family conflict. Second, P-E fit theory shows that the three forms of work-family conflict identified by Greenhaus and Beutell (1985) can be attributed to the effects of time, strain, and skills in one domain on abilities in the other domain. Thus, abilities are the primary channel through which work-family conflict occurs, which reinforces the importance of incorporating abilities into models that explain work-family conflict. Third, P-E fit theory states that misfit between demands and abilities will generate stress only when unmet demands create a deficit of supplies relative to needs. Because work-family conflict is rooted in demands-abilities misfit, it follows that work-family conflict will not produce stress unless failure to resolve conflict prevents the person from satisfying his or her needs. This point is suggested by discussions of work-family conflict (Greenhaus & Beutell, 1985) but is not incorporated into models of work and family stress, which depict direct paths from work-family conflict to strain.

Spillover. Work-family research has examined various forms of spillover between work and family. One is *mood spillover*, in which moods experienced in one domain are related to moods in the other domain (Burke & Greenglass, 1987; Lambert, 1990; Staines, 1980; Zedeck, 1992). In P-E fit theory, moods are captured by strain, which includes affective consequences of P-E misfit. Drawing from P-E fit theory, mood in one domain can influence mood in the other domain when mood in the former domain affects the fit between needs and supplies in the latter domain. One explanation for this effect is that negative moods in one domain interfere with the person's ability to fulfill role demands in the other domain (Barling & Macewen, 1992; Nolen-Hoeksema, Parker, & Larson, 1994). This process may occur because negative moods inhibit problem-solving and reduce self-efficacy (Staw, Sutton, & Pelled, 1994) and because work and family role demands often proscribe the exhibition of negative moods (Ashforth & Humphrey,

1993; Rafaeli & Sutton, 1987). Thus, the effects of mood spillover can be captured by a negative relationship between strain in one domain and abilities in the other domain. This relationship is largely unintentional because it operates through cognitive and motivational processes that do not require intent (Edwards & Rothbard, 2000).

Another form of spillover examined in work-family research is *values spillover*, where values in one domain influence values in another domain. In terms of P-E fit theory, values spillover signifies a causal relationship between psychological needs associated with work and family, given that values are represented by psychological needs in P-E fit theory. Drawing from Edwards and Rothbard (2000), the effects of work and family needs on one another can be direct or indirect. Direct effects are illustrated by research indicating that employees in organizations that value authority and control place a high priority on obedience in their children (Payton-Miyazaki & Brayfield, 1976; Pearlin & Kohn, 1966). Indirect effects are evident when needs developed and reinforced in one domain influence the person's overall life values, which then affect needs expressed in other domains. This process recognizes work and family as important socializing forces that influence what people consider valuable and desirable (Payton-Miyazaki & Brayfield, 1976; Piotrkowski, 1979; Repetti, 1987). Following Edwards and Rothbard (2000), the effects relating work and family needs can represent intentional strivings for value consistency between work and family (Cialdini, Trost, & Newsom, 1995) or unintentional transmissions of ingrained values between domains (Lord & Maher, 1991).

Work-family research also addresses spillover of skills and behavior between work and family (Champoux, 1978; Edwards & Rothbard, 2000; Repetti, 1987; Staines, 1980; Zedeck, 1992). These two forms of spillover underlie behavior-based conflict, in which skills and their associated behaviors are inappropriately transferred from one domain to the other (Greenhaus & Beutell, 1985). Although behavior-based conflict frames this transfer as dysfunctional, skills and

behaviors developed in one domain can also enhance the person's ability to meet demands in other domains. For instance, employees who learn participative management skills at work can transfer these skills to family situations (Crouter, 1984). Likewise, teachers develop interaction patterns with students that shape their parenting behavior (Ispa, Gray, & Thornburg, 1984). The linkages between work and family skills and behavior can be direct or indirect, as when skills and behaviors become generalized knowledge structures or behavioral scripts. These linkages can also reflect intentional applications of skills and behaviors across domains or unintentional displays of schemas and scripts (Edwards & Rothbard, 2000; Lord & Kernan, 1987; Lord & Maher, 1991).

Compensation. Compensation refers to efforts to offset dissatisfaction in one domain by seeking satisfaction in another domain (Burke & Greenglass, 1987; Lambert, 1990; Zedeck, 1992). One form of compensation occurs when the person decreases involvement in the dissatisfying domain and increase involvement in another domain, where involvement refers to the perceived importance of a domain or the time devoted to a domain (Lambert, 1990; Staines, 1980; Zedeck, 1992). For P-E fit theory, domain importance is captured by the intensity of work and family needs, and time is part of the abilities the person can devote to work and family demands. Because compensation is a response to dissatisfaction, it signifies coping and defense efforts to reduce strain by managing objective and subjective P-E fit, respectively. Given that domain importance is subjective (Lambert, 1990; Lobel, 1991), altering domain importance represents defensive efforts directed toward work and family needs. On the other hand, time is objective, which means that reallocating time between domains reflects coping targeted at work and family abilities. Hence, compensation by shifting involvement between work and family is captured by positive direct effects between strain in one domain and coping and defense in the other domain, which influence abilities and needs in the latter domain, respectively. These

linkages represent conscious efforts to manage strain and are therefore intentional (Edwards & Rothbard, 2000).

Another form of compensation occurs when the person responds to dissatisfaction in one domain by seeking rewards in another domain (Kando & Summers, 1971; Zedeck, 1992).

Rewards correspond to supplies in P-E fit theory, which the person can seek through coping efforts. For example, a person who is dissatisfied with the amount of emotional support from family members may seek supportive relationships with supervisors and coworkers. A person can also pursue supplies in an alternative domain by increasing efforts to meet demands in that domain that are instrumental to supplies. For instance, a manager whose work role performance is insufficient to fulfill his or her need for achievement may invest additional time and energy in family role performance. This type of compensation entails coping efforts that increase abilities applied to the alternative domain. Compensation by seeking alternative rewards again implies a positive intentional direct effect between strain in one domain and coping in another domain, where coping is targeted at supplies and abilities in the form of effort dedicated to role demands.

Additional linkages. Compensation, spillover, and work-family conflict are three types of work-family linkages that are particularly relevant to understanding work and family stress. However, P-E fit theory provides a platform to study additional linkages between work and family. For instance, *segmentation* refers to the active separation of work and family (Burke & Greenglass, 1987; Lambert, 1990; Zedeck, 1992), which can be viewed as intentional efforts to reduce or eliminate linkages between work and family constructs highlighted by P-E fit theory (Edwards & Rothbard, 2000). *Resource drain* is the transfer of personal resources such as time and energy between domains (Eckenrode & Gore, 1990; Small & Riley, 1990; Staines, 1980), which is captured by the relationship between work and family abilities underlying time-based conflict. *Congruence* refers to similarity between work and family due to a third variable that

serves as a common cause (Morf, 1989; Zedeck, 1992). In P-E fit theory, congruence can be incorporated as general aptitudes that influence work and family abilities, overarching life values that influence work and family needs, and psychological and physical predispositions that affect strain and health in work and family. These and other linkages between work and family can be conceptualized as relationships between P-E fit constructs in the work and family domains, using the model in Figure 4 and the framework developed by Edwards and Rothbard (2000).

Reframing linkages between work and family in terms of relationships between constructs in P-E fit theory offers several contributions. First, it resolves basic ambiguities regarding the sign, causal structure, and source of the relationships that work-family linkages represent. These ambiguities have prompted researchers to characterize work-family linkages as “pretheoretical metaphors” (Rice, Near, & Hunt, 1980, p. 61) and were a major motivation for the Edwards and Rothbard (2000) framework. Here we show how the Edwards and Rothbard (2000) framework can be applied using our model of P-E fit within and between work and family. Second, specifying work-family linking mechanisms as relationships between constructs in our model of work and family P-E fit reveals the theoretical processes underling these mechanisms. By making these processes explicit, the nature and causes of the linking mechanisms can be understood and empirically tested. Third, our mechanisms linking work and family P-E fit constructs substantially expand the range of linking mechanisms addressed by models of work and family stress, which focus primarily work-family conflict. Our model incorporates additional linking mechanisms prevalent in work-family research and shows how these mechanisms are relevant to stress, coping, and health.

Conclusions and Directions for Future Research

The model of work and family P-E fit presented here offers several advantages over existing models of work and family stress. First, the model explicitly defines stress as subjective

needs-supplies misfit. This definition avoids problems with other conceptualizations of stress (Lazarus & Folkman, 1984; McGrath, 1970) and is well anchored in the stress literature (Edwards, 1992; French et al., 1982; Harrison, 1978; Schuler, 1980). Second, the model incorporates cognitive appraisal by distinguishing between objective and subjective person and environment constructs and by emphasizing the cognitive comparison of subjective needs and supplies as the essence of psychological stress. Third, the model captures the effects of coping and defense on the objective and subjective person and environment constructs that serve as the root causes of stress. Finally, we demonstrated how the model can incorporate linkages between work and family that are relevant to the stress process.

The P-E fit model of work and family stress offers several promising avenues for future research. One avenue concerns the relationship between P-E fit and strain within work and family. As noted previously, this relationship can be conceived as a three-dimensional surface oriented around the fit and misfit lines, and hypotheses can be developed regarding the shape of the surface along these lines. A growing body of research has tested three-dimensional relationships between P-E fit and strain (Edwards, 1996; Edwards & Harrison, 1993; Livingstone et al., 1997; Taris & Feij, 2001), some of which focus on P-E fit for work and family (Edwards & Rothbard, 1999). Additional research along these lines is clearly warranted. Rather than adopting an exploratory approach, studies should develop and test *a priori* hypotheses regarding the shapes of surfaces relating P-E fit to strain, which can be facilitated by applying the concepts of carryover, conservation, interference, and depletion.

Another promising avenue of research involves linkages between work and family and their implications for stress. To date, work-family conflict has received the majority of attention, but few studies have examined the interplay between work and family demands and abilities that theoretically underlie work-family conflict. In addition, some studies have separated conflict in

terms of whether work interferes with family or family interferes with work (Adams et al., 1996; Aryee et al., 1999; Frone et al., 1992, 1997; Grandey & Cropanzano, 1999), but few studies have distinguished time-based, strain-based, and behavior-based conflict (Greenhaus & Beutell, 1985). As shown by our model, these three forms of conflict are captured by different linkages among parallel work and family constructs indicated by P-E fit theory. The three forms of conflict can also be separated in terms of work interfering with family or family interfering with work by reversing the causal flow of the linkages that describe conflict. Other linkages, such as spillover and compensation, are relevant to the stress process but have received little attention in research on work and family stress. The model presented here provides a useful starting point for investigating these and other linkages between work and family and how they relate to stress.

The P-E fit model developed here also has several implications for practice. Specifically, by emphasizing person-environment misfit as the root cause of stress, the model highlights multiple levers for intervention. For example, coping with demands-abilities misfit at work may involve decreasing job demands such as work load or responsibility, increasing job-related skills, or both. Likewise, coping with demands-abilities misfit associated with family might entail reducing parenting demands by using child-care services, increasing parenting skills through training or workshops, or both. Moreover, because of linkages between work and family, interventions that target one domain can reduce stress in that domain as well as the other domain. For example, flextime at work can provide people with resources to meet family demands. Likewise, developing conflict management skills in the family setting can help resolve conflicts among employees in the work setting (cf. Crouter, 1984). Finally, the model also emphasizes the importance of perception, where the perceived person and environment are the critical linkages between the objective person and environment and stress. Thus, communication of policies is critical in ensuring that organizational interventions are seen and understood by employees.

The model presented here is an initial attempt to integrate P-E fit theory with work and family stress research. Further theoretical development is clearly warranted. For instance, we considered only a subset of the possible linkages between work and family that the model can accommodate. It would be useful to consider the conceptual, empirical, and practical value of examining the full set of linkages offered by the model. In addition, the model could be further expanded into parallel versions for different roles within work and family (e.g., boss, coworker, subordinate, parent, spouse) and additional life domains (e.g., leisure). Expanding the model in this manner would increase its complexity, but this complexity mirrors the multifaceted nature of the stress process across different aspects of life. We hope the model presented here stimulates research that increases our understanding of this process.

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Footnotes

1. Strictly speaking, any line running perpendicular to the fit line represents variation in the difference between needs and supplies. However, the misfit line depicted in Figure 3 captures the maximum differences between needs and supplies, as indicated when needs reach their maximum and supplies reach their minimum, or vice-versa (as indicated by the end points of the misfit line).
2. Edwards and Rothbard (1999) used satisfaction rather than dissatisfaction as the outcome of needs and supplies. Therefore, to construct the surfaces in Figure 4, the scaling of the vertical axis was reversed. Other than this modification, the surfaces in Figure 4 are identical to those reported by Edwards and Rothbard (1999).

Figure 1

Person-Environment Fit Theory of Stress (French et al., 1982; Harrison, 1978)

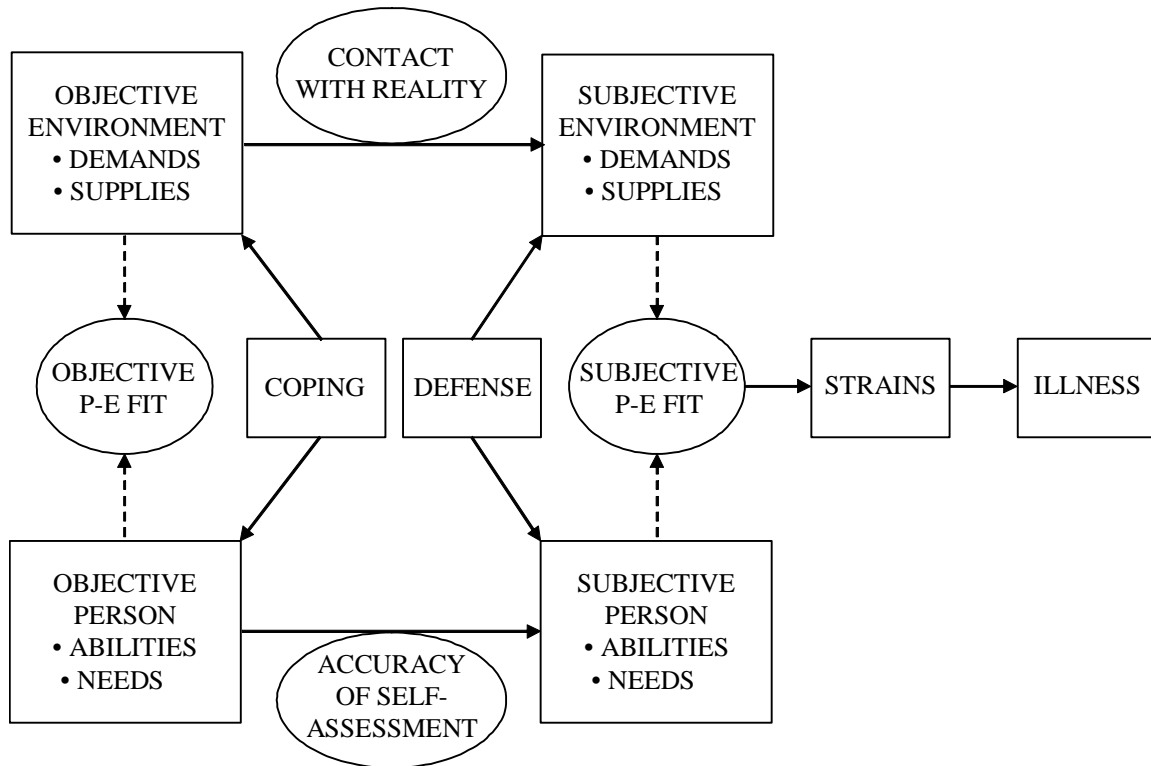
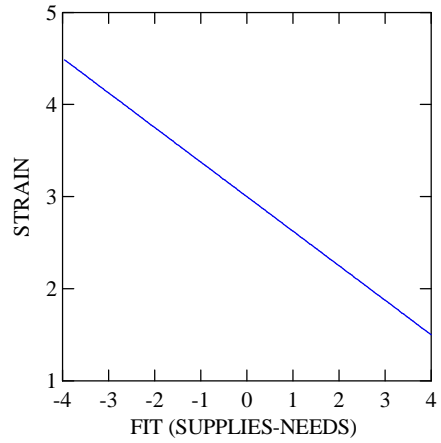


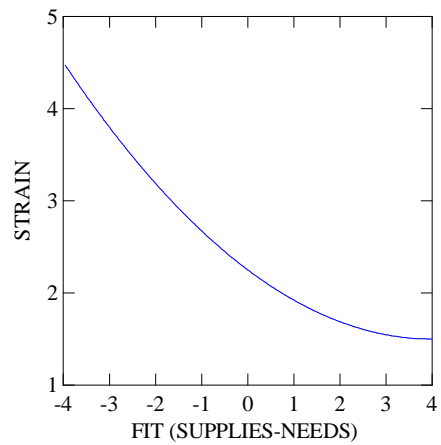
Figure 2

Two-Dimensional Functions Relating Needs-Supplies Fit to Strain

a. Monotonic Function Relating Needs-Supplies Fit to Strain



b. Asymptotic Function Relating Needs-Supplies Fit to Strain



c. Parabolic Function Relating Needs-Supplies Fit to Strain

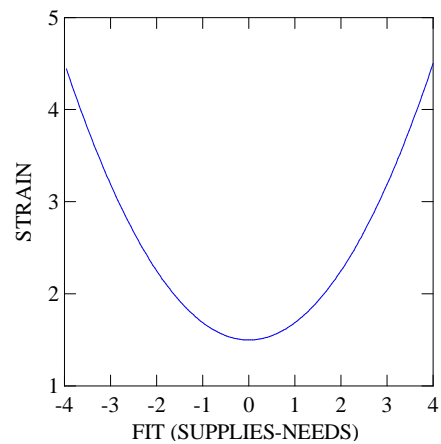
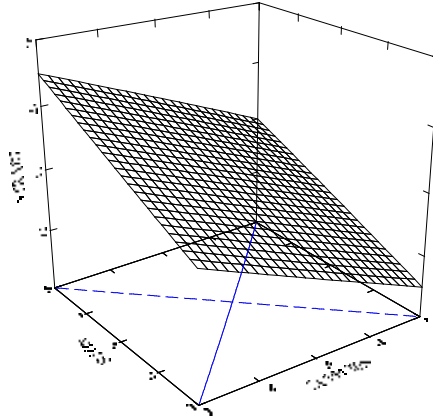


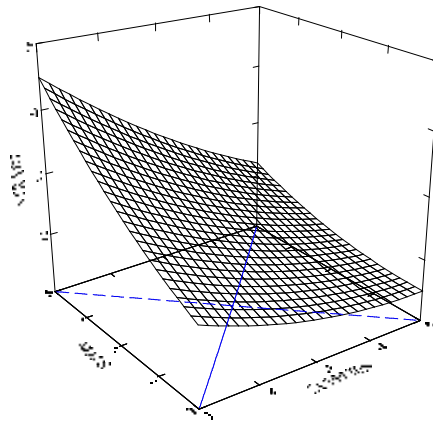
Figure 3

Three-Dimensional Surfaces Relating Needs-Supplies Fit to Strain

a. Monotonic Surface Relating Needs-Supplies Fit to Strain



b. Asymptotic Surface Relating Needs-Supplies Fit to Strain



c. Parabolic Surface Relating Needs-Supplies Fit to Strain

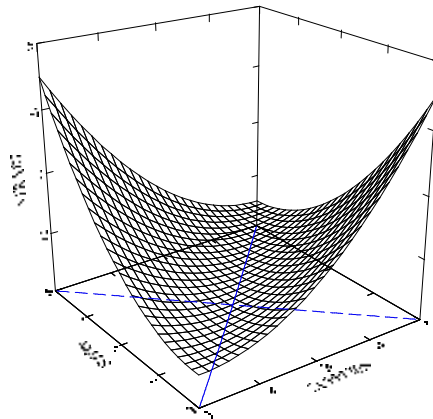


Figure 4

A Model of Person-Environment Fit in Work and Family

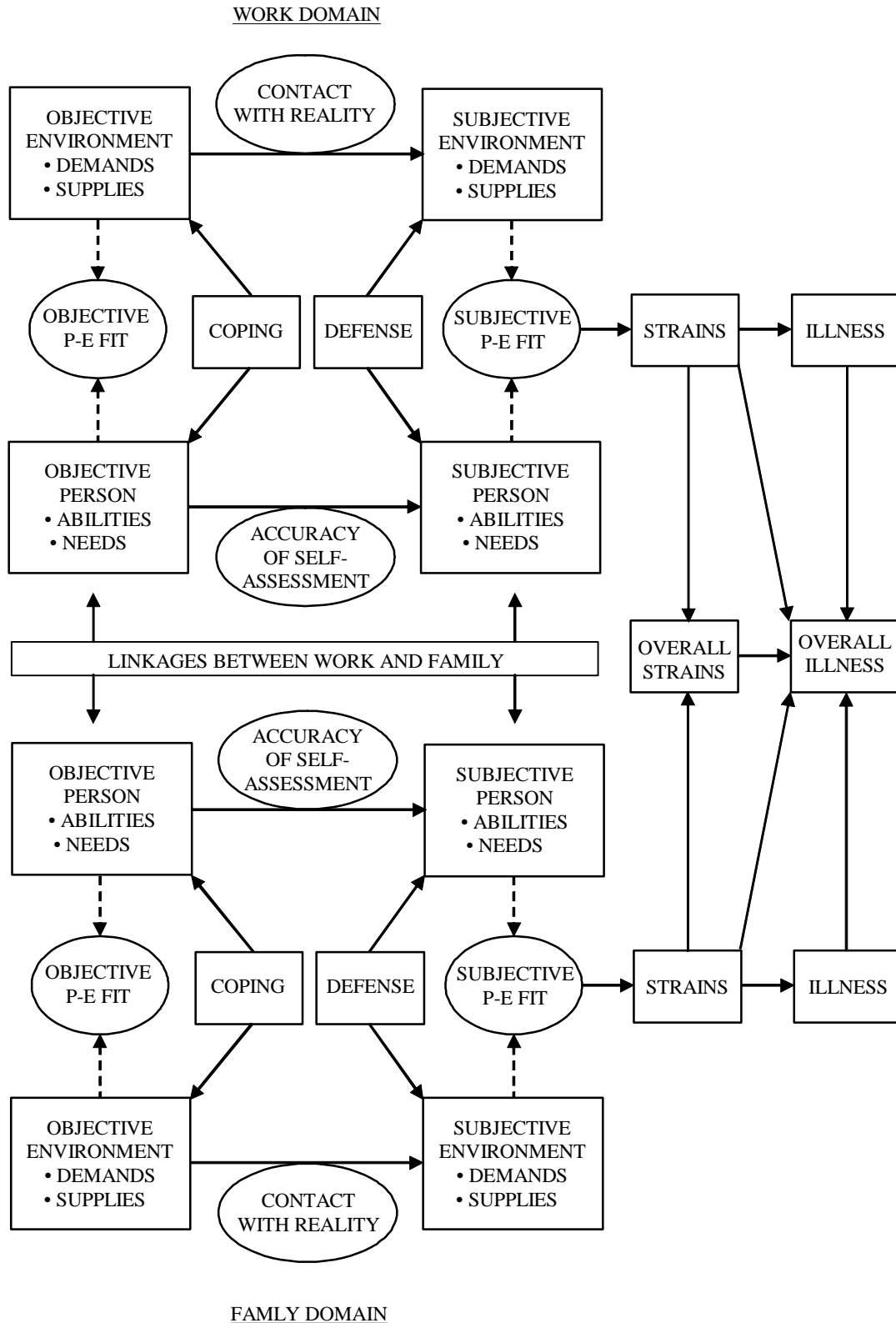
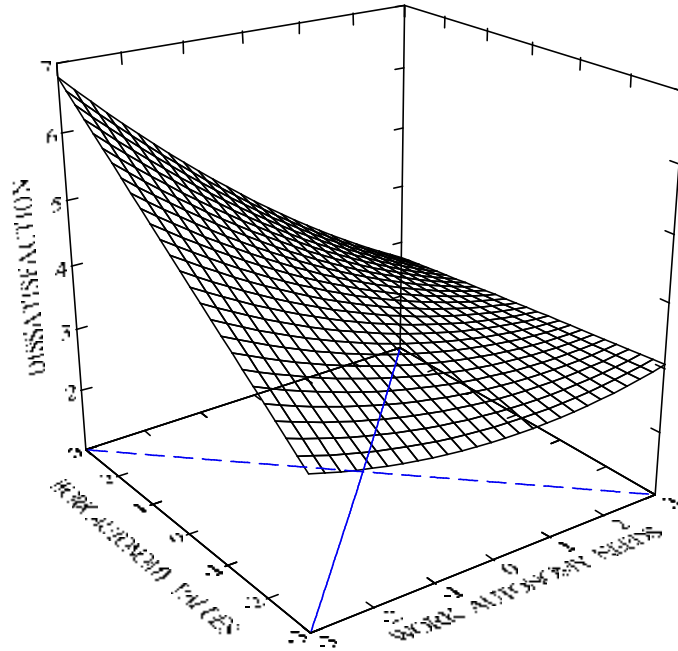


Figure 5

Surfaces Relating Autonomy Needs and Supplies to Dissatisfaction for Work and Family

a. Surface Relating Autonomy Needs and Supplies to Dissatisfaction for Work



b. Surface Relating Autonomy Needs and Supplies to Dissatisfaction for Family

