
Theories of Psychological Stress at Work

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Introduction

This chapter is about theories of work-related stress. Of course, throughout this Handbook, stress-related topics are discussed. However, in order to understand different theories and to give them a sense of time, place, and meaning, we attempt to explore them against the changes in how stress has come to be defined. The importance of exploring stress theories in this way lies in the way it gives a sense of history: of why different theories prevailed (Cooper, Dewe, & O'Driscoll, 2001), whether they are “worthy of the intellectual resources focused on them” (Kaplan, 1996, p. 374), whether they adequately express the nature of the experience itself (Newton, 1995) and, despite the knowledge and understanding they have provided, whether they are still capable of expressing “the stress of the stress process” (Lazarus, 1990, p. 4). We also explore whether we can distil from them what should now become the organizing concept of the future around which such theories should focus. Liddle (1994) describes an organizing concept as one with “sufficient logic and emotional resonance to yield systematic theoretical and research enquiry that will make a lasting solution” (p. 167). Finally, we explore the different theories in terms of how they have influenced our measurement strategies, where our current methodologies are taking us, what this means for understanding the richness of the stress experience, and the type of evidence they provide in terms of work stress and well-being. However, this chapter does not review all the different theories of stress. In order to explore how they have evolved, we have selected a number that best express this evolutionary process, although all theories have an evolutionary element to them. A comprehensive review of stress theories can be found in

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Cooper (2000). This book is as “a compendium of theory rich in diversity and range” (p. 4) emphasising not just the need for theories to capture the essence of the work experience itself, but also help us as researchers fulfil our moral responsibility to those whose working lives we study. This chapter begins by first exploring the evolutionary milestones in the way stress has been defined. It then uses this as the context for exploring the development of selected stress theories. The chapter concludes by exploring what this means in terms of our understanding of work stress, those elements that should now be reflected in our theories of stress and the issues we now need to consider as researchers and practitioners.

Definitions of Stress and Their Evolutionary Role

Definitions of stress are, of course, products of their time. They produce a state of knowledge built around a research agenda that expressed the issues of the day. In this way, all definitions give us a sense of time and place, and it is through this sense that we get an understanding of why different definitions emerged, their influence on the development of theory, how we engaged in research and the way our results were interpreted. It is no wonder then that, as stress definitions first expressed the nature of stress in terms of its different components, these components provided the building blocks for our theories. What perhaps is critical to our understanding of how different theories emerged lies less in the different components that provided our theories with structure, although this makes them no less important, but in the way in which those components are arranged in terms of the relationship they expressed. Distinguishing between structure and relationship allows the emphasis to shift to “the sequencing of events that culminate in the experience of stress” (Kaplan, 1996, p. 387), and contributes to our understanding not just in terms of how definitions of stress have evolved but how the nature of that relationship has found expression in different theoretical models.

It is tempting when considering how stress has been defined to describe different definitions as reflecting different stages in our understanding of the term with each stage representing the research emphasis of the time. Describing stress definitions as progressing through a series of stages gives, perhaps, a more orderly feel to the way they evolved than actually occurred. Researchers, depending on their own agenda, followed different paths, influenced somewhat by the demands of their own discipline and nudged along by social, economic, and political issues, helping to explain why different approaches often were unacknowledged. Moreover, whenever the word stress was mentioned, or attempts made to define it, a fairly robust debate followed (Cooper et al., 2001; Dewe, 2001). Early definitions of stress defined it in terms of a stimulus, response, or the interaction between the two. Without doubt, these definitions have provided much needed information and a considerable body of knowledge now exists as to the nature and characteristics of these different components and their interaction (Dewe, O’Driscoll, & Cooper, 2010). This is not to say that such definitions should now be assigned to the annals of history, even though they do possess this quality of time and context. Such definitions also possess an evolutionary quality, allowing researchers to continue to explore their nature and evaluate their characteristics in terms of their relevance to contemporary work experiences, as well as continuing to explore whether the interaction between the two is best expressed as some sort of imbalance between the person and the environment (Cooper et al., 2001). The importance of these traditional definitions now lies less in the knowledge they provide and continue to provide, and more in whether they have the capacity to offer an understanding of the complexity and richness of the stress process itself (Dewe, 2001; Dewe et al., 2010).

In order to understand the full influence of definitions of stress on our stress-related theories, it is necessary to consider two further developments in the evolution of such definitions. These include the need to think of stress in transactional terms (Lazarus, 1990, 1999), as well as whether it is now time

to shift our attention away from the somewhat contentious term “stress” to thinking more in terms of discrete emotions (Lazarus, 2001). This is because it is “discrete emotions experienced at work [that] constitute the coin of the realm” (Lazarus & Cohen-Charash, 2001, p. 45) when attempting to understand the dynamics of a stressful encounter. Turning first to the transactional nature of stress, such a definition takes the view that no one component can be said to define stress because each has to be viewed relationally as part of a more complex process where, ultimately, all become part of the context within which the stressful encounter takes place (Lazarus, 1999). Transaction implies that stress resides neither solely in the person nor solely in the environment, but in the transaction between the two (Lazarus 1991). The power of the transactional approach to defining stress lies in the fact that transaction implies process, and in order to understand the nature of that transaction commits researchers to exploring those cognitive processes that link the individual to the environment (Dewe et al., 2010). It is, as Lazarus (1999) suggests, the process of appraisal that provides that link and, in so doing, provides the “conduit” between the stressful encounter and the emotions that follow. The authority of appraisals lies in the fact that they act as a bridge to what one experiences and how one feels in a particular encounter (Lazarus, 2001). This also provides a conceptual pathway for more closely examining the role of discrete emotions.

If appraisals trigger the emotion response then, as Lazarus and Cohen-Charash (2001) suggest, stress always implies emotion so “stress and emotion should be treated as a single topic” as “emotion encompasses all the phenomena of stress” (p. 53). In this way, as Lazarus (1999, 2001) suggests, we can turn our attention away from the troublesome concept of stress and embrace discrete emotions as better expressing the nature of what it is individuals are experiencing. If, as researchers, we are interested in understanding whether our definitions (and therefore our theories of stress) represent the individual experience, then it is now time to develop definitions that more explicitly capture the reality of the emotional experience (Dewe et al., 2010). Thus, as definitions of stress have evolved, it is now time to think in terms of the different components to the stress transaction operating within a relational process (Lazarus, 1999, 2001). Our definition of stress should now lead us towards theories that point to the mechanisms that underlie and best express the nature of the stress process, and the manner in which those mechanisms provide a causal pathway that expresses the nature of the experience. In this way, when we think of the word “stress,” we no longer think in terms of “detachable entities” (Coyne & Gottlieb, 1996, p. 966) like simply a stimulus and response, but more in terms of a process where the emphasis is on “tracing out” (Aldwin, 2000, p. 42) the transactional nature of that process. Such causal pathways will lead us in a more focused direction to the specific nature of what is being experienced, allowing us to abandon solely using the term “stress,” and focus more on the emotional quality of the experience.

There are, of course, numerous definitions of stress, just as there are numerous theories of stress. A fine line exists between theory and definitions. Definitions are more likely to be products of our theories, and they express the evolving nature of our knowledge and the direction that research has led us. While each theory adopts its own particular focus, all are generally structured around a common set of components that are basically linked together in a relationship that is process-oriented. The idea of process is, more often than not, expressed through the ideas of “fit or balance” and is, now, more likely to be transactional rather than interactional in nature. Indeed, as Cooper (2000) suggests, the volume of empirical research using an interactional theoretical framework has “massively outstripped our ability to understand the implications of that research” (p. 2), and to place it within some theoretical framework seeking to develop theories that allow an understanding to emerge about those mechanisms that drive that process. Our aim, Cooper (1998, p. 4) concludes, must be to “understand those linkages” that not just give expression to the stress process, but also provide a context for exploring individual well-being. By presenting various theories that illustrate in their own way how such “linkages” have been conceptualized and researched, we wish simply to illustrate the creativity that exists

in our field, the richness and complexity of the stress process, and the direction future research may wish to take. We begin with one of the earliest and most fundamental perspectives on psychological stress—Lazarus’s transactional model.

Lazarus and the Transactional Model of Stress

The transactional model defines stress as arising from the appraisal that particular environmental demands are about to tax individual resources, thus threatening well-being (Holroyd & Lazarus, 1982). This definition of stress encompasses a number of themes that capture the transactional nature of stress and those processes that best express the nature of that transaction. These themes involve the following:

- Stress is a product of the transaction between the individual and the environment.
- The authority and power of the transaction lies in the process of appraisal that binds the person and the environment and, it is this “relational meaning” (Lazarus, 1999, 2001) that the person constructs from the transaction and that lies at the heart of the stress process.
- There are two types of appraisal—primary and secondary. It is through these appraisals that the focus is shifted to what people think and do in a stressful encounter, representing a process-oriented approach (Lazarus, 1999, 2001). This reflects the “the changing person–environment relationship” (Lazarus, 1990, p. 4), and provides an insight into the nature of the stress process itself.
- It is the appraisal process that offers a causal pathway—a bridge to those discrete emotions that best express the nature of the stress experience (Lazarus, 2001; Lazarus & Cohen-Charash, 2001).

As noted above, there are two types of appraisal (Lazarus, 1999). The first describes primary appraisal. This is where the person acknowledges that there is something at stake (Lazarus, 2001). The idea of whether “anything is at stake” is, as Lazarus (1999, p. 76) points out, fundamental and it is where the person asks, for example, “do I have a goal at stake, or are any on my core values engaged or threatened? “It is where the person considers the significance of the encounter and evaluates it in terms of its personal meaning. Lazarus identifies three types of primary appraisals (p. 76): *harm/loss*—something that has already occurred; *threat*—the possibility of some harm in the future; and *challenge*—where the person engages with the demand. Later, Lazarus (2001) added another appraisal that he described as *benefit*, where individuals search for the benefit in a demanding encounter. Negatively and positively toned appraisals (Lazarus) are associated with different types of emotions, and they provide the pathway through which as much emphasis can now be given to positive emotions as has been given to negative emotions (Dewe et al., 2010). It is these appraisals that operate as the “cognitive underpinnings” for coping as they are part of “an active search for information and meaning on which to predicate action” (Lazarus, 1999, p. 76).

It is secondary appraisal where the focus turns to “what can be done about it” (Lazarus, 1999). This is where the person evaluates the availability of coping resources (Lazarus, 2001). While much debate surrounds the definition of coping (Dewe et al., 2010), the definition put forward by Lazarus describes coping in terms of a process that embraces the “constantly changing cognitive and behavioural efforts a person makes to manage specific external or internal demands that are appraised as taxing or exceeding the resources of the person” (Lazarus, 1999, p. 110). Lazarus and his colleague Folkman (1980) went on to identify two types of coping. These they described as problem-focused (where the focus is on managing the encounter), and emotion-focused (where the focus is on regulating the emotion) coping. Classifying coping strategies as either problem- or emotion-focused offered what Folkman and Moskowitz (2004, p. 751) described as a “broad brush approach.” Since then, researchers have taken the opportunity to consider a range of ways of classifying coping strategies, expanding the original work to include, for example, strategies that include meaning-centred coping and relationship-social

coping (Folkman, 2011). While no consensus has yet been reached as to the number of coping categories, researchers do agree that no category should be regarded as inherently better than another, because each needs to be considered within the context of a stressful encounter and how that encounter is appraised. Whether or not a consensus will ever be reached as to the way coping strategies should be classified is a moot point, as coping is always context specific.

Classifying coping strategies is one thing but, when considered in terms of the way they are being used in a particular encounter, illustrates the richness and complexity of the coping process and suggests that researchers may wish to explore the way in which different strategies are used before labelling them as simply falling into one category or another. Also, there is the vexed question of coping effectiveness. Two theoretical approaches offer an understanding as to how to best judge coping effectiveness. The first focuses on whether “personally significant” and appropriate outcomes have been successfully achieved (Folkman & Moskowitz, 2004, p. 754), whereas the second considers effectiveness in terms of the “fit” between the type of coping and the nature of the encounter. Folkman and Moskowitz suggest a number of refinements to these two approaches. The first is in terms of developing a better understanding of what we need to investigate when it comes to the nature of outcomes, such as their qualities and characteristics and, similarly, when it comes to “fit” developing a more refined analysis of those environmental characteristics that may influence the nature of coping. While as other authors (Dewe et al., 2010) point out, it may also be time to consider just exactly what we mean when we talk about coping effectiveness, starting perhaps from the proposition raised by Lazarus (1999): the issue of effectiveness for *whom* and at *what cost*; whatever position we take, “the issue of determining coping effectiveness remains one of the most perplexing in coping research” (Folkman & Moskowitz, 2004, p. 753).

The term “secondary” appraisal is not meant to suggest that it is of any less importance than “primary” appraisal. The difference between the two appraisals is, as Lazarus (1999, p. 78) points out, “not about timing but the contents of the appraisal.” Lazarus goes on to add that it is the “distinctly different content of each type of appraisal” (p. 78) that requires each to be investigated separately. But, as he cautions, each is part of a “common process,” where together they each help to shape a stressful encounter as the manner in which individuals give meaning to an encounter is further refined through the process of secondary appraisal. While coping research has captured the imagination of many researchers, there is still considerable debate as to just where current methodologies are taking us in terms of how coping is measured, and what it is that alternative measures may provide (Coyne, 1997; Dewe 2001; Folkman, 2011; Folkman & Moskowitz, 2004; Lazarus, 2000; Somerfield & McCrae, 2000). What is clear from this debate is that researchers are already looking towards how coping measures can move away from simply relying on checklists (Folkman & Moskowitz, 2004), to exploring process-driven longitudinal designs (Lazarus, 2000), and more ecologically driven methods that explore daily processing measures such as daily diaries and “intensive day-to-day monitoring of phenomena” (Tennen, Affleck, Armeli, & Carney, 2000, p. 627). What is encouraging, as Lazarus points out, is that there is “more reason to hope that the field of coping is maturing” with researchers using more creative approaches to measurement that “could add substantially to understanding and contribute to practical application” (Lazarus, 2000, p. 673).

While coping research has continued to grow, the role of primary appraisal and the meaning individuals give to demanding encounters has not, at least in work stress research, received the attention it deserves. Work stress research (Dewe, 1993; Dewe & Ng, 1999; Lowe & Bennett, 2003) has, when exploring work stressors, illustrated that individuals can distinguish between the objective nature of a stressor and its meaning, and explored whether underlying appraisals like challenge and hindrance help to better distinguish among common work stressors (Cavanaugh, Boswell, Roehling, & Boudreau, 2000). However, some researchers have questioned whether, by focusing on intra-individual process like appraisal, such individual-level analysis takes us away from what should be

our primary goal of identifying work stressors that affect the working lives of most workers (Brief & George, 1991). Also, questions have been raised as to the utility of this approach in terms of how such information informs decisions about how to intervene (Schaubroeck, 1999). Nevertheless, far from questioning the theoretical rigor and empirical significance of Lazarus' transactional theory, with its emphasis on the appraisal process, most critics observe that there are, in the work stress agenda, opportunities for all aspects of the stress process to be studied (Frese & Zapf, 1999). Also, work stress research might profit from "reflecting more carefully on how such [appraisals] processes follow (Schaubroeck, 1999, p. 759), and that when investigating work stress it is, as Perrewe and Zellars (1999) suggest, not just important to explore individual appraisals but "it is *essential* in order to understand the stress process" (p. 749).

Person–Environment Fit

Another theoretical model which has been in existence for a considerable amount of time, and which to a large extent has underpinned other approaches to stress and well-being, is the *Person–Environment Fit* (P–E fit) perspective. This account of the stress process stems from the early work and theorizing of Lewin (1935) and Murray (1938). For example, reacting to prevailing mechanistic views of human behaviour which attributed the causes of behaviour solely to the environment, and psychodynamic approaches which tended to conceive behaviour as emerging from personality characteristics (traits), Lewin conceptualized the interaction between the person and environment (P×E) as the key to understanding people's cognitive, affective and behavioural reactions. His early thinking therefore provided the foundation for the modern perspective of P–E fit. In particular, he foreshadowed the notion that optimal fit between the person and his/her environment is needed for effective human functioning. Numerous descriptions of P–E fit are available in the literature, although perhaps the most comprehensive account is that offered by Edwards (1998), who also described earlier constructions of P–E fit, such as those initiated by French, Caplan, and Harrison (1982). Here we do not attempt to provide an exhaustive account of this theory and its applications; rather, we summarize the main elements of this perspective, and illustrate how it has been applied, along with its strengths and some limitations. It should also be noted that the tenets of P–E fit theory also underlie several other theoretical models of stressor–strain relationships, including the cybernetic theory (Cummings & Cooper, 1979; Edwards, 1998), which will not be discussed in this chapter. One specific advantage of the P–E fit conceptualization over some other (more specific) theories is that P–E fit is based essentially on the idea of employee adjustment in the work setting, which has been illustrated as being critical for overall well-being (Dawis & Lofquist, 1984).

We begin with the notion of "fit" itself. Synonyms for fit are "match," "congruence," and "correspondence." In the occupational stress and well-being literature, the fit concept has been characterized as having two components: (a) the degree of match, congruence, or correspondence between the demands people confront at work and their abilities to meet those demands, referred to as *demands–ability fit*; and (b) the match, congruence or correspondence between the person's needs (including physical and psycho-social needs) and the resources available to him/her. The latter is referred to as *needs–supplies fit*. Most research on the relationship between P–E fit and stress or well-being has focused on the second of these types of fit, as it is assumed that a lack of fit (that is, misfit) between needs and resources will have a pronounced impact on stress levels and overall well-being. However, demands–ability fit can also be important in terms of a person's well-being. For instance, if person's workload is high and they do not have the time or energy to perform what is expected from them, this can induce a high level of psychological strain. A (very simplified) depiction of the basic theory relating to P–E fit is provided in Fig. 2.1. The theory hinges on the amount of a "stimulus" (for example, workload, work complexity, level of authority,

		Preferred	
		High	Low
Received	High	Low strain	High strain?
	Low	High strain	Low strain

Fig. 2.1 Levels of psychological strain predicted by P–E fit theory

and social interaction with work colleagues) that an individual prefers to have, and the actual level of the various stimuli (referred to in this figure as “received”). There are two conditions in which the level of fit is high: when the preferred levels and the received levels are both high; or when they are both low. Consider, for instance, the level of social contact people have with their work colleagues. An individual may wish to have an extensive amount of contact with colleagues, and may actually experience this amount. This situation clearly is one where there is a strong match between what people want and what they receive; that is a strong fit, and they should (at least theoretically) experience low strain (and high psychosocial well-being). Alternatively, the individual may not actually want very much contact at all with work colleagues, and does not have substantial interpersonal contact. Again, this situation reflects a high degree of fit, and one might expect the levels of strain to be low. However, this situation is not as clear-cut as the high–high condition, because here social interaction may not be important for individuals and other factors may have more impact on their stress and well-being levels.

Conversely, P–E fit theory postulates that high strain will occur when there is a mismatch between the person’s needs and what they receive or confront at work. The condition which (theoretically) should create highest levels of strain will be one where the person strongly desires a particular feature (such as interpersonal contact), but does not receive it (the high-low box in Fig. 2.1). Under these circumstances, strain will be at its highest level. On the other hand, when people do not have a strong preference for an attribute (in this case, interpersonal contact), but they do receive it, there is some ambiguity over whether this situation will be stressful for them. Strictly speaking, they should experience strain, as there is a mismatch between their preference and what they are supplied with. However, this is likely to depend on numerous other factors, including whether the attribute interferes with other activities or things the individual would prefer to be engaged in. For example, having frequent contact with work colleagues may distract the person from core job activities, leading to frustration and a sense of lack of achievement, in which case high strain might be anticipated. In contrast, even though they may not desire it, interpersonal contact may serve as a welcome distraction from a challenging task; hence, they may not feel stressed by it. In sum, although the P–E fit model predicts that misfit (of either kind) will increase levels of strain, in practice the amount of strain experienced in the high–low condition in Fig. 2.1 may be substantially greater than that felt in the low–high situation.

In summary, the basic notion underlying P–E fit theory is that there needs to be a match between what people want and what they receive, as well as a match between their abilities (knowledge, skills) and the demands placed upon them. Lack of match (misfit) creates strain and (ultimately) reduces their sense of psychosocial well-being. However, demands–ability and needs–supply match are considerably more relevant to people when the stimuli are important to them. Edwards (1995, 2000) has referred to this as dimension importance, and is related to Maslow’s need-hierarchy principle. Using the example given above, if work performance is important to the person, then frequent interpersonal contact may be viewed as a substantial interference which reduces the ability of the person to achieve what he/she desires. On the other hand, if individuals are not concerned about how well they perform at work, frequent non-work related social interaction with work colleagues may not be considered a distraction and, hence, will not increase strain. As we have noted above, increased psychological strain and decreased psychosocial well-being are two major outcomes of

misfit in the work context. Other potential outcomes have also been identified in the literature, including job dissatisfaction, reduced commitment to the organization, and greater turnover intentions. It is also evident that the notion of P–E fit is relevant across various domains, including life outside of work. For the purposes of this chapter, however, we concentrate on its relationship with work-related strain and well-being. Numerous studies have confirmed that misfit (mainly in respect of needs–supplies, but also in terms of demands–abilities) can have serious consequences for worker well-being. A good illustration of this relationship comes from a fairly recent study by Yang, Hongsheng, and Spector (2008). These researchers explored the actual and preferred conditions at work, with respect to two key issues—career advancement and relationships at work—in a sample of Chinese workers. Expectations concerning career development are clearly salient to many employees, and opportunities for advancement within their career are typically important. Yang and colleagues hypothesized that correspondence between the preferred level of career advancement and perceptions of opportunities available to employees would enhance job satisfaction, mental and physical well-being, whereas misfit between preferred levels and perceived opportunities would predict reductions in these criterion variables. A similar prediction was proffered by Yang and colleagues in relation to social relationships at work. They suggested that maintenance of harmonious social relationships is a critical need (perhaps even more so in a collectivist culture such as China), and that good social relationships will enable people to fulfil their need for affiliation and need for belonging. These researchers argued that a better fit between preferred levels of social relationship and actual levels would be related to greater job satisfaction and reduced turnover intentions.

An important consideration raised by this above study is how best to assess (measure) fit, in this case needs–supply fit. Early studies of fit tended to utilize the difference between actual and preferred levels of an attribute as the index of fit (or misfit). However, as pointed out by Edwards (1995), there are several difficulties with this computation, and techniques such as polynomial regression may be more appropriate for the assessment of levels of fit. This was the approach used by Yang and colleagues. Their findings confirmed the expected curvilinear relationships between actual and preferred levels of both career advancement and social relationships at work, although the “nature of fit-strain associations is contingent on the specific content dimension of fit and the specific indicator of stress outcome” (p. 581). For example, for career advancement, there was an increase in job satisfaction as the actual level of advancement approached the desired level, but when supply exceeded people’s preferences, job satisfaction declined. The trend for turnover intention was in the opposite direction, as expected. A somewhat different pattern emerged with respect to relationships at work. In this case, job satisfaction and mental well-being were consistently higher when actual relationship quality was high, irrespective of preferred relationship quality. These findings illustrate that fit is a relative concept, and that the salience of fit per se may vary depending on the attribute (component) being investigated. In some circumstances, the extent of fit between needs and supplies may be critical, whereas in other situations the actual levels of a component may override the importance of perceived fit.

In summary, the concept of P–E fit has received widespread recognition in the occupational health and well-being literature, and numerous investigations have been designed (either explicitly or implicitly) around this concept. There is no doubt that this model occupies an important position in conceptualizations of both work stress (strain) and work-related well-being, and that the theory has several practical applications. This model has generated critical lessons for organizations in relation to stress-management interventions and occupational health and well-being promotions. As with all other perspectives, there are certainly limitations, including the relative salience of perceived fit versus actual levels of components, but these limitations are clearly outweighed by the significant contributions which the model has made to theorizing and practical application.

Conservation of Resources Theory

Another very popular theoretical model of the stress process is that developed by Stevan Hobfoll (1989), known as the *Conservation of Resources* (COR) theory. This perspective bears marked similarity with the P–E fit model, specifically in that both approaches examine the interaction of the person and the environment, and the degree of correspondence between demands in the environment and the individual's resources to deal with those demands. One key difference (outlined by Hobfoll, 2001) is that the P–E fit model focuses predominantly on people's perceptions of fit, whereas COR theory incorporates more objective indicators of actual fit. Nevertheless, there is considerable overlap between these approaches. The fundamental tenet of COR theory is that "individuals strive to obtain, retain, protect and foster those things that they value" (Hobfoll, p. 341). That is, people endeavour to both preserve resources and to accumulate resources in order to better navigate their way through life's demands and challenges. A "resource" is anything that is important to the person, contributes positively to their well-being and enables them to adjust. In his overview of COR theory and its applications, Hobfoll indicated that 74 different types of resources have been identified through research. Some of these are what he referred to as "personal" resources, whereas others are features of the environment (external resources). Personal resources include attributes such as personal values (e.g., the importance of achievement), personality traits (e.g., internal locus of control, hardiness, dispositional optimism, generalized self-esteem) and other characteristics, including positive affect (Nelson & Simmons, 2003). Environmental resources will vary depending on the kind of environment the person functions in. In a work context, for example, features such as having autonomy in one's job, the amount (and type) of feedback received on one's job performance, and the level of rewards obtained for successful job performance, are all illustrations of environmental resources (Hakanen, Perhoniemi, & Toppinen-Tanner, 2008). Social support from work colleagues and organizational support for individuals (accommodating their needs) also represent major environmental resources, which can reduce stress and burnout (Halbesleben, 2006), as well as enhancing positive well-being (Luszczynska & Cieslak, 2005).

As just mentioned, a key feature of COR theory is its simultaneous consideration of both environmental elements and the individual's cognitions. In this theory, these dimensions are given relatively equal weight in determining whether or not the person will experience conservation of resources. Hobfoll suggests that Lazarus' transactional model gives too much emphasis to personal appraisals (of threat) and not enough consideration of why people appraise events in particular ways. His contention is that the transactional model over-emphasizes the role of cognitive processes, and gives insufficient attention to the environment itself. In contrast, COR theory delves into environmental characteristics that contribute to conservation of resources and, hence (according to Hobfoll), has more practical application. The basic idea underlying COR theory is that stressful circumstances lead to resource losses. For example, conflict with other people at work can drain the individual's energy, take time to deal with, and distract them from their basic job tasks, all of which will result in resource losses. In contrast, favourable conditions will lead to resource gains; for instance, when people receive positive feedback on their work from their supervisor, this will increase their positive affect and enhance their self-esteem, as well as confirming that their job performance is acceptable. However, although COR theory incorporates both resource losses (due to stressful environmental conditions) and resource gains (from favourable events occurring), the major emphasis is on losses. Hobfoll has also suggested that, because resource losses represent a major threat to survival, they have primacy over resource gains when the person is contending with unfavourable (stressful) circumstances. He also argued that individuals tend to focus more on resource losses than gains, again because losses can undermine the person's ability to survive and thrive in their world. Nevertheless, resource gains are important for the person to develop and to increase their overall level of psycho-social well-being.

Two other principles of COR theory are important to note: (a) resource spirals and (b) resource caravans. The concept of *spirals* is based on the notion that, when individuals lack resources to deal with stressful events, they are not only more vulnerable in that situation but also “loss begets further loss” of resources (Hobfoll, 2001, p. 354). Several studies have obtained support for this spiralling of resource losses. For instance, King, King, Foy, Keane, and Fairbank (1999) found that resource deficits experienced by combat personnel in Vietnam “spilled over” into a reduced ability to cope with post-combat trauma, reducing their opportunities for recovery. Similarly, resource gains can also spiral, such as when successful performance leads to further achievement, although Hobfoll has suggested that loss spirals typically have more impact on people’s well-being than do gain spirals. In addition to gain/loss spirals, COR theory also includes the concept of resource *caravans*. This notion suggests that resources can aggregate and build upon each other. An example provided by Hobfoll is the caravanning of self-efficacy with optimism. For example, if the self-efficacy of individuals is enhanced by effective job performance, they will also become more optimistic concerning their ability to perform effectively in the future. Similarly, the availability of social support may bolster feelings of self-esteem of individuals, leading them to feel more comfortable about seeking further social support in the future. Extending the caravan metaphor, Hobfoll (2001) commented that “the retinue of resources tends to travel together over time unless some inner or outside forces are specifically directed to alter the constellation of resources” (p. 350).

As noted above, there is considerable empirical support for the COR principles and logic, and this theory has made a significant contribution to both the theoretical and applied literature. A recent study example (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009) illustrates the applicability of COR theory. In a two-wave longitudinal investigation among employees in an electrical engineering and electronics firm in the Netherlands, Xanthopoulou and colleagues examined reciprocal relationships between job resources (namely autonomy, social support, supervisory coaching, performance feedback, and opportunities for professional development), personal resources (self-efficacy, organization-based self-esteem and optimism) and work engagement (based on Schaufeli, Bakker, & Salanova, 2006). They observed that when employees had high levels of resources, their work engagement increased and, conversely, high levels of engagement were also associated with greater resources at the second time period. Xanthopoulou and associates concluded that both role (job) resources and personal resources play an important role in facilitating work engagement. Their study also demonstrated the concept of gain spirals in respect of work engagement.

The Job Demands–Control–Support Model of Work Design

A somewhat different, but nonetheless complementary approach to those outlined above, is a theory of work design proposed initially by Karasek (1979) and later expanded by Karasek and Theorell (1990). It should be noted that Theorell has provided a more detailed description of this work in another chapter of the present Handbook. The initial proposition put forward by Karasek is referred to as the Job Demands–Control (JDC) Model, although the term “discretion” was also used by Karasek as a synonym for control. He proposed that, although excessive job demands or pressures (both physical and psychosocial) can have an impact on stress levels (especially psychological strain), by themselves these demands are not the most important contributors to strain experiences. Rather, the amount of strain people experience in their work will be determined by whether or not they have any control over the demands they have to deal with. That is to say, according to Karasek (1979), there will be interactive effects of Demands×Control (or discretion) on stress levels. Put another way, control will buffer (moderate) the impact of demands (pressures) on strain. This relationship is depicted in Fig. 2.2.

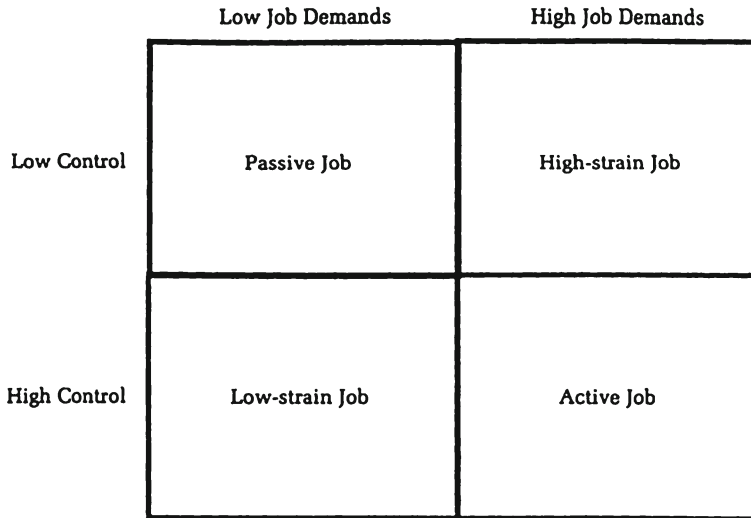


Fig. 2.2 The job demands–job control model

Several issues remained unresolved with respect of this model. One is whether the effects of demands and control are additive or multiplicative (that is, there is an interactive effect between them). Researchers are divided on this question, and there is support for both points of view. A second issue which has not been fully resolved is whether *objective* control or *subjective* (perceived) control is the critical factor in determining stress reactions. In some studies, proxy variables have been used to determine some kind of “objective” measure of control, but most research on this model has focused on workers’ perceptions of control, arguing that how much control the individual feels they have over their work environment is more critical than some kind of objective index of control. Although objective and subjective control are clearly correlated with each other, they do not necessarily coincide.

Empirical support for the JDC model has been produced, with several studies demonstrating a moderating influence of discretion or control on the relationship between job demands and psychological strain (Beehr, Glaser, Canali, & Wallwey, 2001). Nevertheless, there has been controversy about whether the approach is universally applicable. For example, a very recent study (Panatik, O’Driscoll, & Anderson, 2011) did not obtain moderator effects for perceived job control in a sample of Malaysian technical workers, but rather found that feelings of self-efficacy functioned as a moderator of demands–strain relations. It is possible that the Western emphasis on personal control (at work and in other aspects of life) does not generalize to non-Western cultures, which may value more group-oriented mechanisms.

The revised formulation of this perspective, proposed by Johnson and Hall (1988) and Karasek and Theorell (1990), added social support to the mix of factors which will influence a person’s levels of psychological strain (and ultimately their psychosocial well-being) at work. The model then became known as the Job Demands–Control–Support (JDCS) model. Karasek and Theorell suggested that the beneficial effects of control (discretion) will be further enhanced when the individual receives social support (either practical or emotional) from his/her work colleagues and supervisor. The addition of social support to the model was based on extensive evidence that this variable can play a substantial role in alleviating stress in workers (Cooper et al., 2001), although there has been considerable debate over whether its impact is direct (that is, more support is directly associated with reduced strain) or indirect (that is, support will buffer the impact of stressors on strain). The latter view, known as the *buffering hypothesis*, intuitively makes a lot of sense, but has not always been confirmed empirically

(Cranford, 2004; Kickul & Posig, 2001). For instance, although some studies have obtained the predicted moderator (buffering) effects of social support, others have reported direct negative relationships between support and strain or, in some cases, a positive relationship between social support and strain, which is referred to as “reverse buffering” (Kickul & Posig).

Some research has also confirmed a three-way interaction among demands, control, and social support. Indeed, Daniels, Beesley, Cheyne, and Wimalasiri (2008) argued that the reason that control and support have a positive impact on reducing strain and enhancing well-being is that they enable the individual to cope more effectively with stressors (including work demands), and that these benefits accumulate over time. Daniels and his colleagues found that control and support facilitated both problem-focused and emotional-approach coping which, in turn, were related to factors such as fatigue, error rates and reduction of risky decisions. This study is especially important as it has further elucidated a mechanism by which control and support exert beneficial effects; that is, via their contribution to effective coping mechanisms. Other research, however, has reported very mixed support for the JDCS model, and there are unresolved issues. One particular problem which has been discussed for some time (see Wall, Jackson, Mullarkey, & Parker, 1996) concerns the methods of assessing perceived control. Some studies have measured very general control, which does not necessarily match up with the type of stressor (demands) being confronted by the person. For instance, if individuals are experiencing excessive time pressure to get work completed, having control over other aspects of their work domain, such as office layout, may be largely irrelevant, whereas control over the work itself will be critical. Similar arguments can be made with respect to social support. As noted above, social support from work colleagues and supervisors may be beneficial to a person, but is not always so and, in some cases, may actually be detrimental to their well-being (the reverse-buffering effect). In addition, the effects of different types of social support may vary depending on their appropriateness and whether the person wishes to receive any support (and, if so, what kind of support). However, despite the various controversies and unresolved questions in terms of the JDC and JDCS models, there is no doubt that they have had considerable “traction” in research on psychological strain and well-being. There has also been research on the interactive effects of job demands, control and support on physiological strains, such as cardiovascular disease and other physical strains (see, for instance, Shirom, Toker, Berliner, & Shapira, 2008). The theory has numerous practical applications, in that it suggests procedures for enhancing well-being at work and reducing the impact of stressors. Finally, it is linked with other theoretical accounts of the work stress process (which we do not cover in this chapter), such as the Effort–Reward Imbalance Model (Siegrist, 2009).

Different Perspectives, Different Theories

We have not attempted in this chapter to cover all of the (numerous) theories relating to work stress, but rather to discuss a few major ones that have highlighted, different, albeit complementary, different perspectives. Each of the theories discussed offers a different perspective for understanding the transaction between the individual and the environment. Other theories have taken up the issues of “process.” For instance, the theory of stress outlined by Shupe and McGrath (2000) describes “a dynamic, adaptive process theory” (Cooper, 2000, p. 3) which, when focused at the individual level, suggests a complex cycle connected by four processes: the appraisal process (interpreting events); the choice process (the choice of a coping response); the performance process (the coping phase); and the outcome process (the consequences for the individual; Shupe & McGrath, 2000, pp. 86–88). Shupe and McGrath go on to outline the complexity of these interconnected process and the implications this complexity has for researchers in terms of measurement and interpretation. Similarly, Cummings and Cooper (2000) offer a “cybernetic theory” of work stress. The emphasis here is on time, information, and feedback.

These constructs are viewed as essential, and they are regarded as underlying the stress process as it moves from “the detection of strain, through the choice of adjustment processes to cope with the threat situation, and on to the subsequent feedback about coping effects” (p. 3). Cummings and Cooper also go on to outline the complexity of the process, such as the operational and measurement issues involved as the processes moves through its four (detection, choice, adjustment, and affects) phases. At the heart of this theory is the idea that “individuals are active purposive managers of stress and that knowledge can help them anticipate and manage stress” (Wethington, 2000, p. 642). The cybernetic approach is further developed by Edwards (2000) through the idea that the goal of “self regulating systems” is to regulate discrepancies between the individual and the environment. Discrepancies are expressed in terms of a negative feedback loop, and so stress, coping and well being are crucial elements in this self-regulating process.

The idea of process as expressed through some sort of transaction between the person and the environment lies at the heart of these different theoretical approaches. This is not to say that researchers, whilst still grappling with the issues of process and transaction, have not explored and developed other theoretical approaches. We briefly turn to two of these to illustrate the continuing creative way in which the stress process has been investigated. Warr (2007) explored the way in which work leaves us feeling happy or unhappy. While acknowledging the definitional difficulties surrounding terms like happiness and unhappiness, and the preference at times to use the term well-being, Warr (Warr & Clapperton, 2010) suggests that happiness should be considered not just in terms of its energising and tranquil forms, but also in terms of whether it is being used in a contextual (work) sense or even a facet (work component) sense. When exploring work and happiness, Warr (2007) draws attention to the transaction between the person and the environment. When considering the environment, Warr (Warr & Clapperton, 2010) identifies 12 sources of work happiness, but recognizes that there is no correct number of work sources, as these will differ across and within jobs, and will depend also on individual differences. Discussing these work sources, Warr (1997) suggests that the best way to think about these different sources is to liken them to vitamins where, in much the same way as vitamins, they are good for the person but only up to a certain level. Warr (2007) outlined how, like vitamins, moderate levels of these work sources produce happiness, but beyond a certain level there is a “tipping point” (Warr & Clapperton, 2010, p. 73) where the demands of some of these work sources reduce happiness and well-being and where, for other work sources, providing more does not produce more happiness as you have already reached as much as you want. The absence of these work sources does, of course, produce unhappiness.

The role of individual differences also plays a part in the work–happiness equation. While Warr (2007) and Warr and Clapperton (2010) point out the way different personality traits influence happiness, and how happiness also depends on the different sorts of comparisons individuals make about themselves in relation to others, they also raise the issue of whether individuals have a consistency in their levels of happiness—“a baseline” that they keep coming back to (Warr & Clapperton, p. 10). This brief overview cannot capture the level of analysis, the scope of the research or the complexity that resides within Warr’s (2007) vitamin theory. The “overall message” that flows from this approach, however, is that happiness–unhappiness comes not just from the different work sources, but is also derived from within and that “possible improvements must be sought for both directions” (Warr & Clapperton, 2010, p. 177).

Another approach is offered by Nelson and Simmons (2003, 2004) and Simmons and Nelson (2007), who integrate into their holistic stress model the positive qualities of eustress and propose that the appraisal of any encounter can produce positive or negative meanings. This model “focuses on the positive responses and their effects on performance and health” (Simmons & Nelson, p. 40). Interestingly, these authors go on to point to their concept of “savouring the positive” (p. 40), and how this adds a new perspective on how people cope. Similarly, when individual differences are considered in terms of how they trigger positive beliefs, these authors point to how such beliefs aid individuals, create positive

appraisals, develop resources for managing demanding encounters, and shift the focus towards those aspects of the work environment that help create the context for positive opportunities. While arguing that it is now time to include the positive as well as the negative into our theories of stress, these authors suggest that studying work stress should be “best thought of as a constellation of theories and models that each addresses a meaningful process or phenomenon” (Simmons & Nelson, p. 50).

Conclusions and Future Directions

If we have this constellation of theories, where do we go from here? The different theories reflect a number of perspectives, but all offer a lens through which the person–environment transaction can be explored. Each offers a dynamic view of the stress process, emphasising the importance of the context within which the transaction between the person and the environment takes place. Many of these theories draw attention not just to the “contribution of the person as opposed to the environment, in creating organizational stress” (Wethington, 2000, p. 641), but also to the way in which the demands of an encounter are appraised. If individuals are active participants in the stress process and if this “activity,” as seems generally agreed, is initiated through the process of appraisal, then perhaps by focusing on these meanings that individuals give to demanding encounters will help us identify an “organizing concept” for the future. Capturing the meaning individuals give to stressful encounters cannot, of course, be separated from measurement. So, it is important for researchers to continually evaluate whether current measurement practices allow these meanings to emerge, expressed in a way that captures their explanatory richness. In the future, if our theories are to continue to develop our understanding of process, then our measurement practices will need to evolve to develop creative approaches that involve narratives, person-focused techniques and qualitative methods that allow such meanings to be captured. It is not that appraisals have been ignored, but it is more that they have yet to receive the attention they deserve. It is clear that appraisals provide the conduit through which coping and the emotional consequences emerge. It is the appraisal process that has the potential to provide a rich explanatory pathway, and one that enables us to begin the process of working towards the role of discrete emotions and away from the troublesome concept of stress fulfilling our moral responsibility to those whose working lives we explore.

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