## Getting to the "COR": Understanding the Role of Resources in Conservation of Resources Theory


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# Getting to the "COR": Understanding the Role of Resources in Conservation of Resources Theory

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*Proposed as a theory of motivation, the basic tenet of conservation of resources (COR) theory is that humans are motivated to protect their current resources and acquire new resources. Despite its recent popularity in the organizational behavior literature, several criticisms of the theory have emerged, primarily related to the central concept of resources. In this review, we address concerns regarding the conceptualization, conservation, acquisition, fluctuation, and measurement of resources. We highlight gaps in the COR literature that can be addressed by integrating research from other areas of psychology and management. In this manner, we hope to push the COR literature forward by resolving several concerns and providing suggestions for future research that might address other concerns.*

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Over the past 25 years, conservation of resources (COR; Hobfoll, 1989) theory has gradually taken a place as one of the most commonly cited theories in the organizational behavior

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literature. Proposed as a theory of motivation, the basic tenet of COR theory is that humans are motivated to protect their current resources and acquire new resources. Given the diverse applications of this theory, the overarching goal of this review is to provide an examination of the resource construct within COR theory. In particular, we aim to provide new directions for COR researchers that might help address some of the key limitations in the extant COR literature.

We achieve this goal through a review of the COR-based organizational literature. There are several reviews of specific pockets of the COR literature available. Hobfoll (2001a) has provided various reviews of the theory throughout the years; however, these have typically focused on literature outside of organizations and have been more focused on developing the basic psychological arguments for the theory. Westman, Hobfoll, Chen, Davidson, and Lasky (2004) specifically focused on the application of COR to the stress literature. Further, there have been several meta-analytic reviews of specific predictions based on COR (e.g., Halbesleben, 2006; R. T. Lee & Ashforth, 1996; Luchman & Gonzáles-Morales, 2013; Ng & Feldman, 2012).

Our review is unique in several ways. We seek to clarify some issues with the theory that have not been adequately addressed in the literature. In particular, we provide a deep examination of the core concept of COR theory—resources—by addressing some of the key criticisms of COR theory. Most notably, we address the common criticism that resources have not been clearly defined in the literature (Thompson & Cooper, 2001). As offshoots of that general criticism, we address concerns regarding how individuals determine the value of resources, the manner in which resources fluctuate, how those resources are conserved and acquired, and how resources are measured. We address those criticisms through a review of the COR literature, integration with other theories, and suggestions for future research that could directly address the concerns with the theory.

## A Brief Summary of COR Theory

As noted above, COR theory is based on the tenet that individuals are motivated to protect their current resources (conservation) and acquire new resources (acquisition). Resources are loosely defined as objects, states, conditions, and other things that people value (Hobfoll, 1988). The value of resources varies among individuals and is tied to their personal experiences and situations. For example, time with family could be viewed as a valuable resource to one person while it may not be valued by someone else or may even be perceived as a threat to other resources (e.g., one's self-esteem in an abusive relationship).

From the basic tenet of conservation and acquisition emerge several principles of the theory. The first is the *primacy of resource loss*—the idea that it is psychologically more harmful for individuals to lose resources than it is helpful for them to gain the resources that they lost. Loss salience is a well-established notion within cognitive psychology (cf. Cacioppo & Gardner, 1999; Tversky & Kahneman, 1974) and has also seen application in organizational psychology (cf. Stein & Cropanzano, 2011; Taylor, 1991; Thoits, 1983). This principle has several important implications. It suggests that losses at work will have more impact than similarly valued gains (e.g., a loss of pay will be more harmful than the same gain in pay would have been helpful). It also suggests that employment-related resource gains will take on greater meaning in the context of resource losses (e.g., getting a job after being unemployed for a long period; Vinokur & Schul, 2002; Wells, Hobfoll, & Lavin, 1997).

In studies of organizational behavior, resource loss has primarily been applied to understand stress and strain (Halbesleben & Buckley, 2004; Hobfoll, 2001a). A large number of empirical studies have found that when individuals lose resources at work, they are more likely to experience strain in the form of burnout (Shirom, 1989), depression (Kessler, Turner, & House, 1988), and physiological outcomes (DeVente, Olff, Van Amsterdam, Kamphuis, & Emmelkamp, 2003; Melamed, Shirom, Toker, Berliner, & Shapira, 2006). However, this tenet has a motivational element as well, suggesting that individuals will engage in behaviors that avoid resource losses since loss can have such a profound negative impact on well-being. For example, in situations of abusive supervision, individuals who experience reduced resources (manifested via higher strain) are more likely to engage in feedback avoidance in order to avoid further resource losses from interacting with the abusive supervisor (Whitman, Halbesleben, & Holmes, 2014).

As an extension of the conservation tenet, the second principle is *resource investment*. People invest resources in order to protect against resource loss, to recover from losses, and to gain resources (Hobfoll, 2001a). This has typically been examined in the context of coping, suggesting that coping involves investment of resources to stem future resource losses (Ito & Brotheridge, 2003; Vinokur & Schul, 2002). However, a strength of COR theory is that it goes beyond predictions of stress and strain to understand motivation following the experience of strain (Hobfoll, 2001a). As such, several studies have examined how resources are invested following resource losses in organizations, including the manner in which resource losses affect job satisfaction, intensity with which one approaches work, different forms of job performance, and abusive actions taken toward coworkers (e.g., Hochwarter, Laird, & Brouer, 2008; Wheeler, Halbesleben, & Whitman, 2013). For example, Halbesleben and Bowler (2007) used COR theory to explain an interesting pattern whereby emotional exhaustion led to lower in-role job performance but greater investment in organizational citizenship behaviors directed at supervisors and coworkers. They suggested that such an approach to performance might be more instrumental in gaining back short-term resources (through reciprocity) that could help slow additional resource losses.

Many resource investments may be considered to be methods for both gaining and spending resources. For example, Ng and Feldman (2012) examined the manner in which voice in the workplace can serve both as potential means by which to gain new resources (Fuller, Barnett, Hester, Relyea, & Frey, 2007) or a risky use of current resources (Bolino & Turnley, 2005; Detert & Burris, 2007). In this way, Ng and Feldman bring together both the resource conservation and investment principles of COR theory. They found that while voice behaviors are seen as resource depleting and thus less likely when resources are already low, engaging in voice behaviors can lead to resource gains as well. This suggests that resource investment is a complex process that is driven by several psychological factors.

Hobfoll (1998, 2001a) described a number of corollaries of the resource investment process to help understand that complexity (see Table 1). The first three are highly related and deal, conceptually, with a starting pool of resources and accumulation of resources. Corollary 1 states that individuals with resources are in a better position to invest those resources. In other words, those with a pool of resources to draw from have greater opportunity to invest resources. Corollary 2 states that as individuals lose resources, investment becomes more difficult (a resource loss spiral; Hobfoll, 2001a). On the other hand, Corollary 3 states that as individuals gain resources, they are in a better position to invest and gain additional resources (a resource gain spiral). Thus, where Corollary 1 addresses the starting point in the process,

**Table 1**
**Basic Tenets of Conservation of Resources Theory**

| Name | Description | Example Studies Testing Tenet |
|---|---|---|
| Principle 1 | Resource loss is more salient than resource gain. | R. T. Lee & Ashforth (1996) |
| Principle 2 | People must invest resources to gain resources and protect themselves from losing resources or to recover from resource loss. | Halbesleben, Harvey, & Bolino (2009); Halbesleben & Wheeler (2008); Ng & Feldman (2012); Vinokur & Schul (2002) |
| Corollary 1 | Individuals with more resources are better positioned for resource gains. Individuals with fewer resources are more likely to experience resource losses. | Demerouti, Bakker, & Bulters (2004); Mäkikangas, Bakker, Aunola, & Demerouti (2010); Whitman, Halbesleben, & Holmes (2014) |
| Corollary 2 | Initial resource losses lead to future resource losses. | Demerouti et al. (2004) |
| Corollary 3 | Initial resource gains lead to future resource gains. | Hakanen, Peeters, & Perhoniemi (2011); Halbesleben & Wheeler (in press); Mäkikangas et al. (2010); Xanthopoulou, Bakker, Demerouti, & Schaufeli (2009) |
| Corollary 4 | Lack of resources leads to defensive attempts to conserve remaining resources. | Halbesleben (2010); Halbesleben & Bowler (2007); Halbesleben & Wheeler (2011) |

Corollary 2 and Corollary 3 address the downstream impact of changes in resources. Hobfoll (2001a) also proposed that as individuals lose resources, they become more defensive in how they invest future resources (Corollary 4); this suggests that as people lose resources, they will take steps to protect their remaining resources (e.g., Benight et al., 1999; Halbesleben & Bowler, 2007).

In sum, COR theory is based on the tenet that individuals are motivated to protect their current resources and acquire new resources, defined loosely as things that people value. Despite 25 years of research aimed at testing and refining the theory, there is still a lot that is unknown about how people conceptualize resources and the processes by which people conserve and acquire resources. In the sections that follow, we address four aspects of resources that are of particular concern within the literature—their definition, fluctuation, dynamics, and measurement. We summarize what is known about those aspects of resources, with the goal of highlighting ambiguities and contradictions, and then offer suggestions for how researchers might address those ambiguities and contradictions through future research.

## Defining Resources

COR theory is built on the foundation of the resource construct. As noted above, Hobfoll (1988, 1989) defined resources as things that people value, with an emphasis on objects, states, conditions, and other things. This has been interpreted in a wide variety of ways. In Table 2, we provide an illustrative sample of the resources that have been examined in the literature over the past 25 years. A quick review of the table highlights a common criticism of the theory: that nearly anything good can be considered a resource (Gorgievski, Halbesleben, & Bakker, 2011; Halbesleben & Wheeler, in press; Thompson & Cooper, 2001). There are two contributors to this criticism. First, the use of the term "value" implies that a resource must lead to a positive outcome in order to be a resource; this confounds the resource

**Table 2**
**A Sample of Psychological Resources Reported in the Organizational Literature**

| Category | Resource | Source(s) |
|---|---|---|
| Objects/ Conditions | Job Security | Selenko, Mäkikangas, Mauno, & Kinnunen (2013) |
| Constructive | Rewards, Reinforcement Contingencies, Inducements | R. T. Lee & Ashforth (1996); Shin, Taylor, & Seo (2012) |
| Constructive | Autonomy, Decision Authority, Skill Discretion, Control | Chen, Westman, & Eden (2009); Diestel & Schmidt (2012); Kuhnel, Sonnentag, & Bledow (2012); R. T. Lee & Ashforth (1996); Xanthopoulou, Bakker, Demerouti, & Schaufeli (2009) |
| Constructive | Participation in Decision Making | R. T. Lee & Ashforth (1996); Neveu (2007) |
| Constructive | Opportunities for Professional Development | Xanthopoulou et al. (2009) |
| Constructive | Resilience | Shin et al. (2012) |
| Social Support | Social Support (supervisor, coworker, organization, spousal, customer, etc.) | Chen et al. (2009); Diestel & Schmidt (2012); Halbesleben (2006); Halbesleben et al. (2010); Halbesleben et al. (2012); Hochwarter et al. (2006); R. T. Lee & Ashforth (1996); J. Liu, Kwan, Fu, & Mao (2013); Neveu (2007); Xanthopoulou et al. (2009); Zimmerman, Dormann, & Dollard (2011) |
| Energies | Time Away from Work, Recovery Experiences | Trougakos et al. (in press); Davidson et al. (2010); Deery, Walsh, & Zatzick (in press); Fritz & Sonnentag (2005, 2006); Halbesleben, Wheeler, & Paustian-Underdahl (2013); Mojza, Sonnentag, & Bornemann (2011); Sonnentag, Binnewies, & Mojza (2008); Westman & Eden (1997); Westman & Etzion (2002) |
| Key | Emotional Intelligence | Y. Liu, Prati, Perrewé, & Ferris (2008); Winkel, Wyland, Shaffer, & Clason (2011) |
| Key | Self-Esteem, Self-Efficacy, Locus of Control, Core Self-Evaluation | Chen et al. (2009); Kammeyer-Mueller, Simon, & Judge (in press); Vinokur & Schul (2002); Xanthopoulou et al. (2009) |
| Key | Conscientiousness, Emotional Stability | Halbesleben, Harvey, & Bolino (2009); Penney, Hunter, & Perry (2011); Witt, Andrews, & Carlson (2004) |
| Macro | Family-Friendly Workplace Policies | Payne, Cook, & Diaz (2012) |

with its outcome. That is problematic, since research is increasingly showing that even good things can lead to bad outcomes (e.g., having high levels of work resources associated with engagement can lead to work-family conflict; Halbesleben, Harvey, & Bolino, 2009; see also Beehr, Bowling, & Bennet, 2010; Grant, 2011). Second, the original definition emphasizes categories of resources (objects, states, conditions, etc.), but identifying and categorizing resources is different from defining them.

We propose a definition of resources that fits well with other motivation theories and also allows us to draw connections with broader theories about organizations. We define resources as anything perceived by the individual to help attain his or her goals. While admittedly broad, a goal-directed definition helps us to understand the basic properties of resources within the context of COR theory, as well as the more sophisticated dynamics of resources. Further, goals are a common element in many motivation theories (Locke & Latham, 1990),

including evolutionary theories (Kaplan & Gangestad, 2005), self-determination theory (Gagne & Deci, 2005), expectancy theory (Vroom, 1964), control theory (Klein, 1989), goal-setting theory (Locke & Latham), and others (cf. Bargh & Ferguson, 2000; Elliot & Dweck, 1988). Thus, they serve as a valuable connection point for COR theory within the broader array of motivation theories.

Our definition may leave some readers with a continued sense of dread—in effect, this still means that nearly anything could be a resource if someone thinks it could help him or her meet a goal. Though a goal-based definition of resources remains necessarily vague due to its dependence on understanding of an individual's goals, it helps clarify the notion of value that led to much of the concern with previous conceptualizations of resources. Moreover, it decouples the resources from their outcomes. Our emphasis is on the perception that a resource could help an individual attain a goal, not that a resource was successful in facilitating goal attainment. This is critical, as it accommodates situations where individuals protect resources that, from an outsider's perspective, seem to be hindering goal attainment rather than facilitating it (e.g., engaging in extrarole behaviors at the expense of in-role behaviors; Halbesleben & Bowler, 2007). A goal-focused definition helps us to understand the properties of resources and how they facilitate goal attainment. For example, there are clearly multiple ways to achieve a goal in a given situation; goals can be attained through a number of means (or resources). As a result, more than one resource can compete to achieve a common goal (termed *equifinality*; Kruglanski, 1996; Shah & Kruglanski, 2000). In turn, this suggests that resources may be substituted for one another to achieve the same goal (Huang & Zhang, 2013; Kruglanski, Pierro, & Sheveland, 2011).

The foundational notion of goal attainment is quite broad in this context. People typically have multiple subgoals in mind in everyday living (*multifinality*; Kruglanski, Köpets, Bélanger, Chun, Orehek, & Fishbach, 2013). Further, the same resource can be used to satisfy multiple subgoals. For example, we know that resources like core self-evaluations and perceived organizational support lead to many positive outcomes that could help individuals meet goals (Chang, Ferris, Johnson, Rosen, & Tan, 2012; Rhoades & Eisenberger, 2002). Further, scholars assume that resources are finite and individuals are forced to make allocation decisions regarding the resources they have (Kaplan & Gangestad, 2005). The finite nature of resources relates to the primacy of loss in COR theory as it suggests that a loss of resources or a poor allocation decision means a lost opportunity. Thus, it is not necessarily the one with the most resources that thrives but the one that is best able to allocate those resources to maximize their fit with their environment (Hobfoll, 1988; Kaplan & Gangestad). Since the environment changes, individuals' goals to maximize fit also change, as do the means by which the goals are achieved (Kruglanski et al.). In other words, the value of a resource can vary significantly depending on the context. This has contributed to the diversity of resources that are identified in Table 2—if the need for resources is changing to match one's context, a wide variety of things could be valued at any given time. To help organize that variety of resources, a great deal of attention has been paid to how researchers more specifically categorize the broad range of resources in the literature (Hobfoll, 1988, 1998; Hobfoll & Walfisch, 1984; Morelli & Cunningham, 2012; ten Brummelhuis & Bakker, 2012).

While this refined definition of resources helps to clarify several issues with the conceptualization of resources, we recognize that it leaves several unresolved issues. In the sections that follow, we address each of these in turn—how the value of resources is determined, how

they can be conserved and invested, and how they fluctuate between- and within-persons. We then conclude with the broader issue of how we can measure resources using this definition.

## The Value of Resources

We suggested above that resources can hold value to the extent that they are perceived to help one achieve his or her goals. One of the main concerns with studies that utilize Hobfoll's definition of resources is that anything that holds value to someone could be considered a resource (Gorgievski et al., 2011; Thompson & Cooper, 2001). On the contrary, some resources generally seen as valuable may not hold value for an individual in a specific context or could be counterproductive (Winkel, Wyland, Shaffer, & Clason, 2011). Thus, the question of how individuals determine value of resources becomes critically important and is a notable gap in the COR literature, despite very early calls by Hobfoll to examine "normative evaluation of resources" (1989: 520).

Several authors have tackled this issue in the COR literature. For example, Morelli and Cunningham (2012) argued that personal values are shaped by cultural values and that personal values affect the value placed on resources. As a result, we might expect some overlap between resource value among individuals within a culture, but differences in personal values might explain the variance within a culture. It is interesting to note, for example, that nearly 60% of the resources from Hobfoll's Conservation of Resources Evaluation measure were so skewed in Morelli and Cunningham's sample that they could not be used in the analysis. This suggests that many resources elicit a similar level of value among people.

Ten Brummelhuis and Bakker (2012) created a categorization of resources based on source, building on Hobfoll's early work on external versus internal resources, and transience, based on the stability of resources over time. They note that the initial four-part conceptualization of Hobfoll fits well with these ideas, for example, objects and conditions tend to be stable (what ten Brummelhuis and Bakker labeled "structural" resources), and attributes and energies tend to be "volatile." In addition to the two-by-two grid of resources their work suggests, they included two overarching resource types. First, they refer to macroresources as those elements of the social context that create more or less need to call upon the other resources in the system. These could include concepts like public policies, overall economic standing of a population, and other elements of the culture that change the context within which one operates. In this way, macroresources account, to some extent, for the notion that resources are both culturally shared but also context specific. Ten Brummelhuis and Bakker also included what they called "key resources": resources that help one manage his or her other resources (e.g., conscientiousness; Halbesleben et al., 2009; Navon, 1984; Penney, Hunter, & Perry, 2011; Perry, Rubino, & Witt, 2011). In other words, while resources are valued within one's idiosyncratic context, at least some of that context is shared, whether because of shared work culture, occupational culture, or national culture. Their work suggests that in order to define "value," one must consider both cultural/societal and personal value. If one is to invest resources, they must have some shared value within a society or they cannot yield returns on investment. One might consider the value of a currency when one is in the wrong country or the currency is no longer utilized (e.g., trying to use French francs while in the United States). However, beyond societal value, one also must consider the value that comes from the person; that could either increase or decrease the value depending on

their current pool of resources (e.g., those same francs could be a collectors' item that holds value for an individual coin collector). Obviously, the most valuable resources are those that hold both societal and personal value.

The broad discussion of resource value among individuals highlights another criticism of COR theory. Previous conceptualizations of resources raise questions about the possibility that preference or valence of a resource can be both universally positive and idiosyncratically valuable (Freund & Riediger, 2001). While there is emphasis on the shared cultural definition of resources (Gorgievski & Hobfoll, 2008), COR somewhat contradictorily also highlights the idiosyncratic nature of resource gain and loss processes. We organize our review of this literature around two approaches: those approaches that emphasize the universal value of some resources (nomothetic approaches) and approaches that emphasize the fit between the person and the resource when determining value (idiographic approaches).

### *Nomothetic Approaches*

As COR is a motivation theory, it seems prudent to examine other motivation theories to elucidate mechanisms by which an individual may place value on resources. We have defined resources as things perceived to help one achieve his or her goals. The notions of needs and goals have been mainstays of motivation theories for decades (Locke & Latham, 1990; Maslow, 1959). To the extent a resource can help an individual attain a goal or satisfy a need, it should have greater value to the individual (Hobfoll, 2001a). This is particularly likely in light of the consistent findings that goal satisfaction improves well-being (Emmons, 1986), and it fits with the notion that bad investment of resources (in other words, investment of resources that does not lead to goals) leads to higher levels of strain (Halbesleben & Buckley, 2004). Given that humans have multiple, sometimes competing goals and needs at any given time, the resources they choose to conserve or acquire represent resources with greater value.

To that end, we can examine other motivation theories for clues about how resources may take on value. Self-determination theory proposes that there is a continuum of motivation from amotivation to intrinsic motivation with various sources of extrinsic motivation in between (Gagne & Deci, 2005). Further, progression along that continuum is enhanced through the satisfaction of three basic needs—the need for autonomy, competence, and relatedness (Deci & Ryan, 2000). Satisfaction of these needs puts individuals in a position to achieve the innate goal of intrinsic motivation and experience higher levels of well-being (Chirkov, Ryan, Kim, & Kaplan, 2003; Deci & Ryan, 2008; Deci, Ryan, Gagné, Leone, Usunov, & Kornazheva, 2001; Kovjanic, Schuh, & Jonas, 2013; Vandercammen, Hofmans, & Theuns, 2014).

This perspective is useful for understanding why individuals conserve and acquire specific resources. It is interesting to note that all three of the needs outlined in self-determination theory have been extensively studied in the context of COR theory, particularly when one conceptualizes social support as meeting the relatedness need (see Table 2; see also Kammeyer-Mueller, Simon, & Judge, in press). This suggests that autonomy, competence, and relatedness are critical subgoals toward the achievement of goals (Kenrick, Griskevicius, Neuberg, & Schaller, 2010).

It is interesting to note, however, that the relative value among resources that can help achieve autonomy, competence, and relatedness may vary depending on the context (Baard,

Deci, & Ryan, 2004). Gagne and Deci (2005) argued that relatedness and competence move someone along the continuum toward intrinsic motivation, but it is autonomy that pushes him or her fully toward intrinsic motivation (see also Deci & Ryan, 2012). This suggests that autonomy plays something of a foundational role in goal achievement and the value of resources; having autonomy makes relatedness- or competence-based resources more valuable (Trougakos, Hideg, Cheng, & Beal, in press) and can even create a shift whereby typical demands (e.g., time pressure) facilitate higher levels of performance (Kuhnel, Sonnentag, & Bledow, 2012). Overall, this would suggest that individuals place the highest value on the satisfaction of the autonomy need, and resources that move them toward such need satisfaction would be assessed as having higher value. Integrating this with COR theory, it would suggest that motivation to conserve and acquire autonomy-related resources (e.g., autonomy at work, job control) would hold the greatest motivation and greatest impact on well-being.

Another source of insight into the issue of whether resources are universally valued is the research on culture and goal attainment (e.g., Markus & Kitayama, 1991, 1994). Markus and Kitayama (1991) suggest that in some cultures, typically collectivist cultures, the norm is for cultural goals to essentially merge with personal goals. However, in some cases, the norm within a culture is to pursue one's personal goals. Oishi and Diener (2001), as one example, found across three studies that pursuing a goal that is in line with the expectations of others led to positive outcomes for Asian Americans and Japanese college students. On the other hand, pursuing independent goals (goals based on fun and enjoyment) had a more positive impact on European Americans. Their work suggests that in some cultures, the cultural norm may actually support divergence, or the pursuit of individual goals that are not necessarily in line with others. Given that this is typically true of more individualistic cultures, such as that of the United States and several Western European countries where much of the COR literature has originated, it is perhaps not surprising that the seeming contradiction of a resource value's being both socioculturally based and idiosyncratic has emerged but has not necessarily been explored.

This research highlights a continued need in the COR literature to examine whether the meaning and value of resources differs across cultures. There have been some attempts to examine cross-cultural effects of resources, most notably the Collaborative International Study of Managerial Stress (Poelmans, Spector, Cooper, Allen, O'Driscoll, & Sanchez, 2003). Across 25 countries, these researchers found that differences in individualism/collectivism and the family friendliness of government policies affected the relationships between resources and work-family conflict. In other words, resources could have more or less of an impact on well-being depending on culture. More specific to the interpretation of resources, Pines, Ben-Ari, Utasi, and Larson (2002) found similarities across four countries in their interpretation of the importance of one specific resource, social support, as well as consistent findings that the availability of social support had a stronger impact on burnout than the perceived importance of social support. However, there was also significant variation in ratings of importance and availability of social support at the country level that suggested a difference in how different cultures valued social support.

Despite these initial findings, this is one area of COR theory that has not been adequately explored but is critically important to understanding the theory. If there is cultural variation in the assigned value of a resource, it suggests that universal assumptions that a resource is valuable (as is typically seen with resources such as social support; Pines et al., 2002) may

not be maintained in all settings. Moreover, individuals' conservation and acquisition motives may dramatically change for specific resources in cultures where those resources are more or less valued. We recommend researchers particularly focus on the literature cited above regarding cultural differences in goal attainment and well-being as a starting point. In examining differences in goal attainment, it would be worth integrating this work with self-determination theory. While there has been support for the universal application of the need satisfaction processes outlined in self-determination theory by separating the concepts of autonomy from individualism (e.g., Chirkov et al., 2003; Church et al., 2013; Deci et al., 2001), those studies have typically focused on the relationships between autonomy and well-being. While that relationship might be universal, cultures may differ in the extent to which they value the satisfaction of relatedness and autonomy needs, thus pursuing different goals and valuing resources differently. This integration of cross-cultural differences in goal pursuit coupled with self-determination theory could help answer important questions about the value of resources in COR theory. This idea also bridges the gap between nomothetic and idiographic approaches by suggesting that certain resources are universally valued within a culture but may not be similarly valued across cultures.

### *Idiographic Approaches*

Idiographic approaches suggest that resources hold value to the extent that they increase fit between a person and his or her environment. Such approaches have been common in the stress and strain literature (e.g., Edwards, 1996; Lazarus & Folkman, 1984). As noted above, they also have been seen as important to understanding the role that resources play in motivation in COR theory.

Morelli and Cunningham (2012) conceived of resource value in terms of the importance of the resource to the individual. They suggested that importance would be greater for resources that are consistent with the personal values of the individual. While they found some support for this contention when examining self-transcendence values (a preference for placing the values of others over the values of oneself), it is noteworthy that the value most clearly in line with COR theory, the conservation value, was not significantly related to the perceived importance of resources. This suggests that personal values may provide some insight into the value placed on resources, but more research is needed to substantiate those relationships.

When we look outside of the motivation literature, we find that determining the value of resources is a concern that is not limited to COR theory. In fact, the notion that resources are defined in terms of their ability to satisfy goals fits well with the conceptualization of resources at the organizational level. In his seminal article on the resource-based view of the firm, Wernerfelt wrote that a resource was "anything which could be thought of as a strength or weakness of a given firm" (1984: 172). Further, in most studies using the resource-based view, a resource was considered valuable if customers valued it (Barney, 2001; Sirmon, Hitt, & Ireland, 2007). In very simple terms, this sets up something of a tautology: Resources are valuable if customers like them, and the way to gain competitive advantage (in other words, get customers to see value in your output) is to have more and better resources (Priem & Butler, 2001). In a similar manner, individuals are striving to acquire resources and may need to invest some of their current resources to achieve resource acquisition (Hobfoll, 2001a).

Also similar to organizations, individuals may value resources differently (Kraaijenbrink, Spender, & Groen, 2010; Priem & Butler). Thus, just as it is critical with organizations, it is critically important to COR theory to understand how individuals determine value of resources and how that might differ both between- and within-individuals (Leiblein, 2011; Maritan & Peteraf, 2011; Sirmon, Hitt, Ireland, & Gilbert, 2011).

Schmidt and Keil (2013) extended the resource-based view by outlining the conditions under which a resource is valuable to a firm. They define resource value in terms of the amount an organization is willing to invest to develop a resource internally or the willingness to put forward the money to purchase the resource in the market. In COR theory, resources do not necessarily have a monetary value. Thus, we can instead define resource value as the willingness of an individual to invest current resources to acquire new resources. A familiar example is a doctoral degree. The value of that resource can be defined as an individual's willingness to invest other resources—time and opportunity costs, for example—to acquire the resource. One can already start to see how value may differ between-individuals; if an individual is more or less risk averse in investing their current resources, it may affect the perceived value of the resource. Moreover, consistent with Corollary 1 of COR theory, if one has more resources to begin with, he or she is in a better position to invest resources (Hobfoll, 2001a). This may mean that other resources that can be acquired take on more value (see also Proposition 1a of Schmidt and Keil, which makes this same argument for firms).

Schmidt and Keil (2013) argue that several issues help increase or decrease the value of a resource. The first of these is complementarities, or the extent to which a resource fits with a firm's current resource portfolio (Wernerfelt, 2011). Firms assign greater value to resources that can potentially complement the resources the firm already possesses (Schmidt & Keil). A related issue is the manner in which the resource might create discontinuous change for the firm (a radical shift in the way the organization operates). While discontinuous change in organizations could lead to significant advances, organizations with a strong position in the market often shy away from resource acquisitions that are expected to lead to a discontinuous change. Schmidt and Keil argue that this may be the case when the resource in question does not complement existing resources, which one might expect if it is the type of resource that will lead to a discontinuous change. As a result, one would expect the value assigned to the new resource to be lower. However, in a case where discontinuous change is expected but the new resource complements existing resources, the value of that resource is maintained.

Complementarities have a counterpart in the COR literature: resource caravans. The nature of resource caravans in COR theory is still not particularly well developed (Hobfoll, 2002, 2011a). Caravans represent a pattern of resources that typically occur together. For example, those with high self-efficacy tend to have high optimism (Hobfoll, 2001a). Several studies tested the idea of resource caravans. For instance, Hakanen, Peeters, and Perhoniemi (2011) examined the cumulative nature of resources in the form of resource caravans and gain spirals. They found support for a chainlike gain process from job resources through work engagement via personal initiative to work-unit innovativeness. However, the literature has not addressed the order that resources are acquired relative to resources that work in caravans.

Schmidt and Keil's (2013) work could hold the key to understanding these caravans by understanding the extent to which a new resource fits with the existing caravan of resources, thus increasing the new resource's value. Their work suggests that some resources will be

enhanced only if they come after other resources are acquired. For example, Trougakos et al. (in press) found that social and work-related lunch break activities (meeting relatedness and competence needs) only reduce fatigue when the employee has autonomy in choosing his or her lunch break activities. A future research avenue in the literature is the exploration of how resources combine to meet goals (e.g., examining interactive effects; Trougakos et al.; van Mierlo, Rutte, Vermunt, Kompier, & Doorewaard, 2006) as well as the timing of resources, an issue we return to later.

The complementarity issue also fits with a recent line of work by Hochwarter and colleagues (Hochwarter et al., 2008; Hochwarter, Perrewé, Meurs, & Kacmar, 2007). They measured resources in terms of one's ability to manage resources rather than the existence of resources (Gallagher, 2012). Their work stems from the realization that objective levels of resources may hold less value than one's ability to effectively utilize those resources (Diener, Suh, Lucas, & Smith, 1999). This offers an interesting nuance to the complementarity issue by suggesting that if the new resource does not complement existing resources, it may be more difficult to manage and thus be less valuable to the individual.

When we integrate the existing COR literature with insights from the strategic management literature, we can define resource value in terms of one's estimation of the extent to which a resource will facilitate progress toward meeting one's goals. This could be manifest as the willingness to invest current resources to acquire a new resource (presumably, that new resource will enable goal achievement more than the current resources). We can further argue that value is increased to the extent that (1) the individual expects it to help him or her achieve a goal, (2) the individual already has resources, and (3) the new resource complements existing resources. This perspective brings resources in COR theory in line with other constructs from motivation theories. For example, resource value under this definition is consistent with the notion of expectancies in expectancy theory (Vroom, 1964). That consistency is valuable in firmly establishing COR theory within the nomological network of motivation theories. To that end, we turn now to a review of the motivation processes involving resources in COR theory.

## Resource Processes

### *Resource Conservation*

Above, we noted that the value of resources is what makes them subject to conservation. Loss aversion and the resultant motive to conserve resources is one of the two key processes in COR theory (we cover acquisition in more detail below). Yet, it is remarkable how the consequences of such a pivotal concept still remain underinvestigated. To start, there is relatively little differentiation in the literature between resource threat and loss. Hobfoll (1989) and Hobfoll and Freedy (1993) suggested that threat and loss can both lead to strain and have motivating potential; however, the relative impact of those experiences is less well known (Chen, Westman, & Eden, 2009; Halbesleben, Wheeler, & Paustian-Underdahl, 2013). This represents a valuable research avenue as, due to the negative dominance effect, the fear of losing may actually carry greater importance than actual loss (Bilgin, 2012; Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998); one can imagine other contexts, such as job insecurity versus job loss, that might shed more light on differences between threat and loss (Joelson & Wahlquist, 1987). Furthermore, there is an opportunity for intervention at this stage before

the person experiences loss (e.g., Chen et al.). This is an avenue of research that may be particularly valuable to organizations. The management of resource threats versus actual resource losses through decision making has rarely been studied, though there has been interest in how announced decisions regarding a potential loss of resources are frequently decoupled from action (Fiss & Zajac, 2006). To the extent that resource-threatening announcements (i.e., the possibility of furloughs) are decoupled from actual losses (i.e., a furlough), such announcements could lead to significant concerns in organizations. To the broader point, examining responses to threat and responses to loss might offer additional insight into how individuals value resources.

Another area of future research in resource conservation regards the variability in degradation of resources as they are conserved. Some resources, for example, social support, may degrade over time if they are not adequately sustained through reciprocal investment of resources (Halbesleben & Wheeler, 2011, in press). Others, such as knowledge or skills, could degrade if they are not utilized or as other resources are pursued (Bickerton, Miner, Dowson, & Griffin, in press). This is an area of research that has not been adequately explored but has important implications for how individuals approach conservation of their resources.

### *Resource Acquisition*

In addition to conserving resources, individuals are motivated to acquire new resources to achieve goals (Hobfoll, 1988). To some extent, we have addressed several major points regarding acquisition above, for example, suggesting that the willingness to acquire new resources and the investment one is willing to make to acquire resources is a signal of the value of that new resource. However, there are a few remaining issues to address with resource acquisition. Specifically, at any given time, one may pursue any number of resources. COR assumes that people are somewhat strategic in how they determine resource investment, even if those investments do not seem to be objectively wise. However, the extent to which the process is strategic and the strategies people use to acquire resources is far less clear in COR theory.

As noted above, as individuals lose resources, they become more defensive in how they invest future resources (Corollary 4). More recent work (e.g., Halbesleben, 2010) suggests support for the notion that when individuals experience resource losses, they tend to scale back on resource investment or invest in behaviors that are more strategic in their use of resources. One extension of this corollary is work that examines how individuals make investment decisions in an attempt to better define what it means to invest "strategically." Increasingly, researchers are finding that employees consider a variety of elements when making investment decisions, both job related (e.g., job involvement and motivation; Chiu & Tsai, 2006; Halbesleben & Bowler, 2007) and interpersonally related (e.g., trust and reciprocity; Halbesleben & Wheeler, 2011, in press; Unger, Niessen, Sonnentag, & Neff, 2014). Investment decisions are also based on demographic factors, such as age (Ng & Feldman, 2013), and personality factors, such as conscientiousness (Halbesleben et al., 2009; Witt, Andrews, & Carlson, 2004). For example, those people high in conscientiousness seem to be better at managing resources in a way that has less negative impact on their work and home life.

While there has been some progress in addressing the strategic nature of resource investment, it is still not entirely clear how individuals determine the best options for their resources.

This might help explain why some resource investment appears to satisfy personal motives but may be otherwise suboptimal from a performance perspective (Halbesleben & Bowler, 2007). Again, looking to other theories might help fill the gap. According to social information processing theory (Salancik & Pfeffer, 1978), individual beliefs and behaviors are formed by cues they receive from their social environments. The clarity with which these social cues are presented plays an important role in how people shape their attitudes and perceptions (Salancik & Pfeffer). This notion has been applied to organizational research aimed at understanding how social cues may affect the ability of employees to acquire resources (Bhave, Kramer, & Glomb, 2010; Paustian-Underdahl & Halbesleben, in press). The clarity with which coworkers and supervisors send signals regarding resource investment may shape the manner in which employees utilize resources to achieve goals and is worthy of more investigation.

### *Resource Signals*

Several authors working in the COR literature have indicated that there is a separation between resources and signals that a resource is available and/or worth pursuing. For example, Halbesleben and Wheeler (in press) sought to differentiate processes associated with investment of resources. They proposed that there were differences between the perceived availability of resources, which they operationalized as perceived social support, beliefs about the value of investment (operationalized as trust), and the act of investing resources (operationalized as organizational citizenship behavior targeted at others). At issue is whether to invest resources (organizational citizenship) in order to secure additional resources (social support). Halbesleben and Wheeler argued that trust is not itself a resource because trust is largely under the control of another person. Instead, trust is a signal that investment of resources will help the individual realize his or her goal of achieving more resources. In a similar way, Campbell, Perry, Maertz, Allen, and Griffeth (2013) suggested that perceptions of justice serve as signals that resource investment is a worthwhile endeavor because it will lead to a successful outcome. These findings suggest that individuals may perceive signals that an investment of resources will lead to a higher likelihood that one's goals will be achieved, thus increasing the value of the resource one is seeking to attain; this idea has parallels in appraisal-based stress theories, which suggest an investment of resources in coping is more likely when the person perceives that the coping will have a positive impact (Lazarus & Folkman, 1984).

This perception of resource signals may help to explain how some resources that one might otherwise see as valuable are not perceived as such in the context of the workplace. For instance, empirical results have indicated the possible reversibility of such commonly accepted resources as social support and emotional intelligence (Beehr et al., 2010; Winkel et al., 2011). It may be possible that the employee perceives that a particular resource will be more or less likely to help the employee achieve a goal than other resources. This might also explain why one might pursue a resource investment strategy that seems counter to the best interest of the individual. Returning to an earlier example, Halbesleben and Bowler (2007), across three independent samples, found that emotional exhaustion, which they conceptualized as representing a deficit in resources, was positively associated with helping behaviors of employees while also being negatively associated with in-role performance. To an outsider, it might be logical to question whether the employee in this case has mistakenly placed

value on social support over the resources that might be acquired with better job performance. However, it is also possible that the employee perceived some signal that investing in those helping behaviors would eventually lead to performance goals. As a result, much more research is needed to understand how employees perceive environmental cues to make resource investment decisions.

## Resource Fluctuation

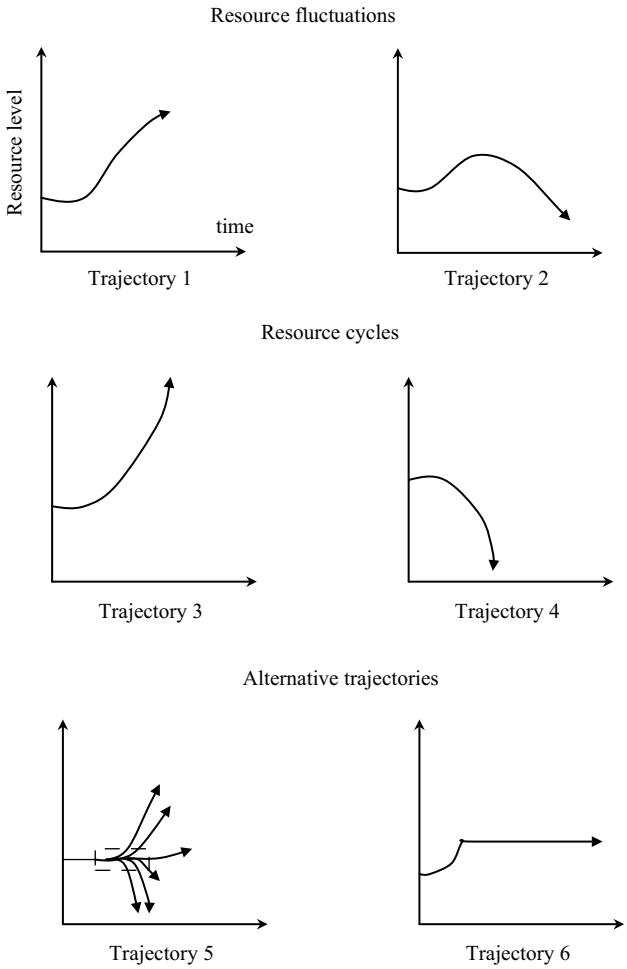
COR is a dynamic theory; the fluctuation of resources means that change is a natural part of the theory. Resource fluctuation is an element of COR theory that has been examined but not directly addressed. For example, many studies have employed longitudinal designs that have accounted for changes in resources (e.g., Mäkikangas, Bakker, Aunola, & Demerouti, 2010; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). That said, while fluctuation of resources is key to COR theory and the definition of resources, there remain several questions that have not been adequately addressed. To help integrate the work that has been conducted in this area, we organize this discussion around several different potential trajectories of resources. Figure 1 outlines these potential trajectories across time; in the sections that follow, we work through each of the points in the figure to explain the work that has been done and the work yet to be done in these areas.

One of the challenges in the COR literature has been the time frame in which resource processes play out. While resource loss cycles might suggest a person could reach a point where all of their resources are used up, that seems very unlikely except under the most extreme circumstances (and even less likely when one focuses attention on the work setting). Similarly, it is not clear what it would mean to continually acquire psychological resources indefinitely. Much of the literature implicitly assumes that there are processes that keep resources from reaching some theoretical ceiling. For example, Halbesleben and Wheeler (in press) specifically noted that while they were studying what could be an infinite resource gain cycle, investment of resources was also part of that cycle, thus keeping someone from hitting some maximum of resources. However, the nature of those end points in the process has not been well understood.

To understand the trajectories, we take an episodic approach (Beal, Weiss, Barros, & MacDermid, 2005), which suggests that we seek to understand resource processes and fluctuation within the limits of the subgoal that is being achieved (or, occasionally, abandoned). Episodes start when someone begins engaging in behaviors that could lead to satisfaction of a goal and continue until that goal is achieved, revised, or abandoned (Barker, 1963; Craik, 2000; Jostmann & Koole, 2009; Newtson, 1973; Newtson & Engquist, 1976). Episodes are not necessarily the same as tasks. Achieving a goal could involve several tasks, and tasks can be repeated to achieve several goals (Beal et al.). While episodes have a time component to them, in that they are time bound by the start of goal-directed behavior and the end of that behavior, the length of the episodes is variable.

Episodes are useful for COR theory in that they can set the boundaries of the conservation and acquisition processes around subgoals. Indeed, work on episodes in the workplace specifically suggests that "performance during an episode is a joint function of resource level and resource allocation" (Beal et al., 2005: 1057). When understanding the manner in which resource processes play out and fluctuate over time, focusing on resources within an episode

**Figure 1**
**Expected Resource Trajectories**




is useful. It highlights that the resources one draws upon would be relevant to the subgoal one is trying to accomplish; the variability in resource availability and subgoals between-persons (e.g., equifinality and multifinality) leads to between-person variation in the ability to achieve goals and the resources required to reach those goals. This leads to the notion that resource fluctuation varies between-individuals.

To address this issue, we draw upon the COR literature to outline a series of potential resource trajectories one might experience within an episode (see Figure 1). Note that all of the trajectories start with a baseline level of resources that is above 0 on the *y*-axis; we assume that all employees start with at least some resources as a precondition of having a job. The left side of the *x*-axis represents the starting point of the episode (start of goal-directed

behavior) and the right side of the *x*-axis represents the point at which the subgoal is achieved, revised, or abandoned. Achievement or abandonment of the goal should trigger a new episode structured around a new goal; thus, we would expect a new trajectory as that new, potentially unrelated subgoal is pursued. A revision of the goal could have a variety of effects depending on the revision. For example, if the revision is simply to a different level of the goal outcome (e.g., pursuing wealth to a specific dollar figure and then revising it downward), the trajectory would be less likely to change, and the episode would conclude faster as achievement of the subgoal becomes more likely. The opposite pattern could occur if the revision is an upward revision (e.g., one reaches a goal and then decides to pursue it even further). Alternatively, the revision could mean maintaining the same goal but utilizing different resources to achieve it. In that case, one would expect a new trajectory. While beyond the scope of this review, the revision of goals and its impact on episodes and resources could be a fruitful avenue of future research, particularly in the context of what we will momentarily refer to as stalled resources.

The first two trajectories represent basic fluctuations in resources. Trajectory 1 represents a typical upward resource fluctuation. COR's two resource processes, conservation and acquisition, suggest that there is likely an upward trend in resources over time as individuals use their current resources to acquire new resources (Hobfoll, 1988). However, the conservation motive introduces a negativity dominance over the motivation process as it plays the role of a fundamental allostatic load (McEwen & Stellar, 1993). In other words, while resources are being acquired, the investment required to achieve resource acquisition means that there is some downward pressure on the general upward trend in resources (Bickerton et al., in press; Halbesleben & Wheeler, in press). Such a situation may be associated with employee engagement, as several authors have suggested that engagement is a result of high levels of resources (Gorgievski & Hobfoll, 2008; Kuhnel et al., 2012).

Research concerning respites—periods of rest or relief—helps explain how resource losses are offset such that gains are still likely overall. Westman and Eden (1997) argued that respites are a time for replenishing resources; the empirical research largely bears this out. Positive effects of respites have been reported for time away from work during weekends (Fritz & Sonnentag, 2006), business trips (Westman & Etzion, 2002), faculty sabbaticals (Davidson et al., 2010), evenings following days of work (Sonnentag, Binnewies, & Mojza, 2008), volunteer work (Mojza, Sonnentag, & Bornemann, 2011), and breaks during the workday (Krajewski, Sauerland, & Wieland, 2011; Trougakos et al., in press). Of course, what happens during these respites is very important. The positive effects on resources are dependent on engaging in activities that help recover resources, like detaching from the work situation or using the respite to build skills in other areas (Fritz & Sonnentag, 2005).

Trajectory 2 represents a situation where recovery does not adequately replenish resources or the investment of resources does not yield the expected returns. Over time, one might expect that this would lead to employee burnout (Hobfoll & Freedy, 1993) and may also increase the likelihood that a goal would be either abandoned or revised (Donovan & Williams, 2003; Tolli & Schmidt, 2008).

### *Resource Loss and Gain Cycles*

Trajectories 3 and 4 are essentially more extreme forms of Trajectories 1 and 2. Recall that Corollaries 1 through 3 of COR theory are specifically about resource gains and losses (see

Table 1). To examine those potential trajectories, there has been a growing literature over the past 10 years regarding loss and gain spirals. For example, Demerouti, Bakker, and Bulters (2004) examined emotional exhaustion as a result of work interfering with family (and vice versa), finding support for a reciprocal negative spiral between those two concepts (see also ten Brummelhuis, ter Hoeven, Bakker, & Peper, 2011; Westman, Etzion, & Gattenio, 2008). Other studies (e.g., Mäkikangas et al., 2010; Xanthopoulou et al., 2009) have found gain spirals between resources and positive outcomes, such as work engagement.

While the literature on gain and loss spirals has grown dramatically in the past few years, there remain several unanswered questions about them. Most notable is how a typical trajectory (e.g., Trajectory 1 or 2) becomes a gain or loss cycle. Often, the starting point of such cycles is not well defined, but other literature might offer some suggestions. First, it is entirely possible that a discrete event, either positive or negative, could induce a large shift in resources that would turn a typical trajectory into a more dramatic cycle. Image theory (Beach, 1990) and its work-related offshoots (e.g., the unfolding model of turnover; T. W. Lee & Mitchell, 1994) suggest that we generally screen information relevant to our goals and persist down a predictable trajectory, but a significant piece of information could create a "shock" to one's cognitive processing that forces the individual to carefully evaluate this new information. While that shock alone may not create a cycle, one's resource allocation response to it could. For example, in the Halbesleben et al. (2013) study of furloughs, there was a general trend toward greater emotional exhaustion following the event (which they suggested was due to a dramatic loss in resources). However, those employees that allocated their remaining resources toward recovery activities during the furlough did not see such a pronounced drop. This suggests that a major event could create a shift in resources that might lead to a cycle but that it would depend on how the person responds to the event.

In that vein, self-regulation may be an important process in determining how a resource trajectory becomes a loss or gain cycle (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Baumeister & Vohs, 2004). Researchers have started to examine how regulatory focus, or the tendency to approach goals through either investment of resources or protection of resources, can affect changes in strain and engagement over time. For example, Halbesleben, Paustian-Underdahl, Kacmar, and Carlson (2012) found that employees with a prevention focus, a motivation characterized by minimizing losses (Wallace & Chen, 2006), were likely to experience the accelerated accumulation effects of emotional exhaustion, while limiting the acceleration of engagement. A promotion focus, characterized by a motivation based on aspirations rather than obligation, was associated with the accelerated accumulation effects of work engagement but did not have an effect on the acceleration of exhaustion. Thus, regulatory focus might help understand how a typical trajectory becomes a cycle either in one's response to a shock or one's general approach to dealing with gains and losses of resources. Understanding other factors that initiate cycles will be an important research avenue not just because of the theoretical implications it could have for understanding trajectories but also due to the very practical implication of trying to avoid typical resource losses' becoming loss cycles.

### *Resource Passageways*

Trajectory 5 of Figure 1 corresponds to the role of resource passageways (Hobfoll, 2002, 2011a). Passageways are a relatively unexamined element of COR theory that emphasize

environmental conditions that might accelerate change in resources either for better or worse. Passageways can work in two directions; thus, they shape the trajectories of resources following them (see Figure 1). On the one hand, they may add to the allostatic load of preservation. This bad-to-worse scenario typifies the downward trend that leads to poor outcomes, such as burnout and physiological problems. On the other hand, passageways also may fuel broaden-and-build dynamics (Fredrickson, 2003) to the benefit of goal achievement and additional resources. Working conditions, organizational and societal culture, and work-home interface situations are all instances of potential facilitators/accelerators of resource development (Hobfoll, 2011a).

Similar to gain and loss cycles, another way to understand resource passageways is through self-regulation. For example, Hochwarter et al. (2006) proposed that the motivation to conserve resources means that individuals will not utilize their resources (in the case of their study, social skill) unless the situation demands it. Thus, the passageway could bring out the utilization of resources or suppress it. The suppression effect might also explain the downward pressure on overall resource gains outlined above, as self-regulation in and of itself is a drain on resources (Baumeister et al., 1998; Beal, Trougakos, Weiss, & Dalal, 2013; Hobfoll, 2001a; Wheeler et al., 2013). Overall, however, the notion of resource passageways is a relatively new innovation in COR theory and thus is an area in need of much further development.

### *Stalled Resources*

Trajectory 6 concerns dynamics of "stalled" resources. At some point of investment, an individual may consider that his or her endeavor has reached a stalemate (Latham & Locke, 2007). Yet, he or she could later recover and resume goal pursuit using potentially different resources (Zeelenberg, Van Dijk, Manstead, & van der Pligt, 2000). Alternatively, he or she may drop this ambition and switch to achieving alternative goals. Yet, while such a psychological "rebound" has been recognized as corresponding to resilience (Hobfoll, 2011b; Shin, Taylor, & Seo, 2012), much remains to be done to investigate the process of postfailure resource investment. It is unclear, for example, whether the stalled resources rebound due to some new or unique combination of resources (similar to the notion of resource caravans above), due to goal revision that makes the resource more valuable, or some combination of the two.

### *Time Issues*

Like so many other theories in organizational behavior (George & Jones, 2000; Mitchell & James, 2001), issues of time have not been adequately addressed in COR theory. As discussed above, the time horizon during which any of the trajectories outlined in Figure 1 occur varies based on the subgoal. Studies suggest resource fluctuations in as little as hours and as long as decades (Kammeyer-Mueller et al., in press; Schaufeli, Maassen, Bakker, & Sixma, 2011). There are several time-related issues regarding resources that have not been adequately addressed in the COR literature. The first has been the impact of timing of resources over the life span on their usefulness (Kooij & Van de Voorde, 2011). As the nature of motivation changes with age (Inceoglu, Segers, & Bartram, 2012), it is clear that the value of

resources also changes (Hobfoll, 2001a; Potočnik & Sonnentag, 2013). The second time issue is the timing of resources in one's career. Lopina, Rogelberg, and Howell (2012) noted that resources such as job information were important in reducing turnover of employees in "dirty work" occupations. More research is needed on critical points when resources are needed. One avenue may be to examine the timing of family-friendly resources. While resources such as childcare may be associated with positive outcomes (Payne, Cook, & Diaz, 2012), clearly, those resources are less valuable before one has children or after the children have left the household. Overall, there is a greater need to examine where time fits into the broader spectrum of resource meaning and process.

## Resource Measurement and Research Designs

The final challenge with COR theory that we address is the measurement and study of resources. First, we address the common concerns about how resources are measured by reviewing some of the current strategies in the literature and offering suggestions based on the clarifications to the resource concept that we offer above. Then, we turn to a discussion about how more innovative research methods could help us better understand some of the issues with resource fluctuation, conservation, and acquisition that we discussed above.

### *Measurement Implications*

In light of our refined definition of resources, a brief review of measurement of resources along with suggestions for moving forward is merited. Early on, Hobfoll (1988) created the Conservation of Resources Evaluation with 74 resources (Hobfoll, Lilly, & Jackson, 1991; Lane & Hobfoll, 1992). This has been utilized in very few studies (e.g., Davidson et al., 2010; Wells et al., 1997); its length, repetitions (respondents have to indicate for each resource whether it was a gain or a loss and to what extent), and the relevance of many of the resources to the focus of any given study create restrictions that have limited its use.

A more common strategy has been simply to determine a small subset of resources (e.g., supervisor support) that are most relevant to the study and measure that subset using the most currently accepted scale. A variant on this includes studies that examine resources that are relevant to a specific setting, for example, Bacharach, Bamberger, and Doveh's (2008) study of the resources relevant to firefighters in New York City or Neveu's (2007) study of prison guards. While this approach has the advantage of greater efficiency, the narrow focus of these studies takes away the ability to examine how resources interact (e.g., resource caravans). Further, this approach has perpetuated the concern that anything can be a resource since it becomes very easy to measure nearly any psychological construct and label it as a resource.

Another recent strategy has been to measure outcomes of resource loss or gain, for example, emotional exhaustion and engagement, as markers that there has been a change in resources (e.g., Halbesleben et al., 2013; Janssen, Lam, & Huang, 2010; Lam, Huang, & Janssen, 2010). This approach is typically justified by the arguments that the idiosyncratic nature of resources and their value, particular across occupations, make the selection of any specific resources questionable. The disadvantage of this approach is that changes in resources are assumed, and it is not clear which resources are responsible for the change. As we take steps toward building interventions around resources, not knowing which resources

are affected in those studies becomes problematic as it takes away a target for the intervention.

Another strategy to address measurement of resources has been to simply measure perceived resources broadly or through a broad sample of common resources (e.g., Zellars, Hochwarter, Lanivich, Perrewé, & Ferris, 2011). Hochwarter et al. (2008) developed a measure of perceived resources that includes questions like "I have enough equipment and personnel at my disposal to fill in for me at work." This strategy moves us closest to a concise way to broadly measure resources while maintaining some variety in the resources measured. The challenge with this approach is determining which resources should be represented in the measure. We suggest that researchers tap into the six categories of resources represented in the taxonomy of ten Brummelhuis and Bakker (2012) in order to maximize content validity while allowing one to examine how different types of resources are relevant to the process being studied.

When measuring resources, researchers must also distinguish between the availability of resources and their value. This distinction highlights the subjectivity inherent in COR theory as we try to define resources. Simply examining the availability of a resource offers incomplete information, since those resources may not be utilized or may not even be welcome (e.g., family-friendly policies; Kelly et al., 2008). Given that the value of the resource is key to understanding the utilization of that resource, we suggest that researchers emphasize the subjective evaluation of the value of resources when seeking to understand the impact that resources have on various outcomes (Morelli & Cunningham, 2012). Further, given the asymmetrical impact that resource loss and resource gain can have, researchers may need to consider ways to measure those processes separately. Research concerning the differences between measuring positive and negative elements of a similar construct (e.g., justice and injustice; Cojuharenco & Patient, 2013) may provide insight on how best to approach this issue.

While a bit dramatic, one could argue that the future of COR theory rests in researchers' ability to appropriately measure resources. We believe that a focus on the value of resources and capturing resources across the taxonomy of resources will improve research. However, we acknowledge that measurement of resources remains a significant challenge to the COR literature. Thus, we encourage COR researchers to take up the challenge of developing a concise, valid measure of resource value and apply it to several of the designs we discuss next.

### *Research Design Implications*

In addition to a more focused approach to the measurement of resources described above, we also believe there are many opportunities to improve research designs and data analysis strategies so they better align with the tenets of COR theory. With processes like resource gains and losses (particularly in spirals), resource investment, and the changing meaning of resources over time, COR theory requires sophisticated research designs. Many studies on COR have utilized cross-sectional designs that have limited their ability to establish causal relationships or even chronological order (e.g., Brotheridge & Lee, 2002; Y. Liu, Prati, Perrewé, & Ferris, 2008). Measuring resources and outcomes at the same time can spuriously increase the relationships between variables (Sanchez & Viswesvaran, 1996). Perhaps more

importantly, such designs do not reflect the reality of what is happening in processes governed by COR processes. We suggest the use of time-lagged data collection techniques largely because COR theory has a strong basis in change processes as outlined in our discussion of resource fluctuation (see Figure 1). The notion of investment requires some time in order to understand the outcomes of investment. The notion of conservation is really only relevant if one is thinking about future outcomes (specifically, the possibility of losses). As a result, studies that incorporate time elements are necessary to truly test COR theory. While those have been increasingly common over the years (Halbesleben, Wheeler, & Stoutner, 2012), there are several specific design innovations that may help move research forward even further.

Experience sampling methods have become more common in the COR literature (Bakker & Bal, 2010; Halbesleben & Wheeler, 2011; Kammeyer-Mueller et al., in press). Experience sampling methods utilize frequent, repeated measurements of individuals in order to reconstruct their experiences at work and separate out effects that occur within-individuals from those that occur between-individuals. While such techniques could be used to test several different research questions related to COR theory, they may be especially well suited for studies of resource fluctuation (Kuhnel et al., 2012) and studies of how key resources affect allocation of resources (Kammeyer-Mueller, Judge, & Scott, 2009) since they would allow for testing of between-person variation in the key resource while also examining within-person variation in the outcomes resulting from those key resources. Wang, Liao, Zhan, and Shi (2011) took this approach by adding an additional level of analysis by examining unit-level supervisor support's role in within-person experiences while also examining between-person effects.

Experience sampling might also be useful in testing how multiple resources interact and how value of resources changes as goals change. The notion of executive control in the context of task switching is well developed in the cognitive psychology literature (e.g., Rubenstein, Meyer, & Evans, 2001) and suggests that there are individual differences in the efficiency and effectiveness of switching from one task to another. Many of the variables examined in that literature are akin to key resources (Eysenck & Derakshan, 2011). Clearly, employees frequently engage in different tasks during the day and have to draw upon different resources to complete those tasks. Experience sampling studies that examine multiple resources (or categories of resources, for example, constructive resources and energies) could help understand how employees draw upon different resources to address different goals and how key resources govern the types of resources employees draw upon as they switch tasks.

Another recent innovation in COR-based designs has been the use of latent change score modeling or latent growth modeling in analyses (Halbesleben & Wheeler, in press; Mäkikangas et al., 2010; McArdle, 2009). Such designs and analyses will allow for a better match between the theory and research when testing COR processes because they allow researchers to model both the mean changes in resources (or antecedents or outcomes of resources) as well as the rate with which those resources change and the manner in which those changes affect downstream changes. This type of modeling matches the processes outlined in Corollaries 1 through 3 in that starting points in resources (Corollary 1) can be modeled related to future resource changes (Corollaries 2 and 3).

Our introduction of the notion of stalled resources suggests that nonlinear designs also must be part of the future testing of COR theory. This can take several forms but again would

require longitudinal designs. Discontinuous growth models may be useful for testing discrete events that might lead to a shift in resources, a change in perception from threat to loss, or reinstating a goal (cf. Halbesleben et al., 2013). Similarly, catastrophe modeling might be an interesting approach to examine instances where the trajectory of growth of a resource does not match its loss trajectory (Guastello & Gregson, 2012; Neveu & Veruete, 2013). Testing other elements of COR theory, for example resource caravans, might require the examination of unique combinations of resources and offer opportunities for the application of polynomial regression and response surface modeling in the COR literature (Edwards & Rothbard, 2005; Yang, Che, & Spector, 2008). The bottom line is that while we have learned a lot about the processes outlined in COR theory, more sophisticated design and analysis tools will be required if we are to continue to grow in our understanding of the theory.

Additionally, greater use of field experiments is needed. Field experiments will allow researchers to show how resource-focused interventions can result in changes in employees' resources and subsequent outcomes (e.g., Chen et al., 2009; Freedy & Hobfoll, 1994). For example, based on COR theory, Chen et al. conducted a "resource workshop" in conjunction with the implementation of a new enterprise resource planning software package among a sample of information technology workers. The aim was to increase relevant resources—control, means efficacy, and social support. They found that the workshop affected several outcomes (e.g., means efficacy related to the use of the new system), though it did not affect performance after the workshop. Interestingly, burnout did not decrease in the experimental group, but it increased significantly in the control group, indicating the resources prevented increase in burnout due to the threat of loss. Bono, Glomb, Shen, Kim, and Koch (2013) suggest an end-of-day reflection on the positive aspects of work as a means to reduce stress and found support for such an approach in their longitudinal study.

## Conclusion

From our review of the role that resources play within COR theory, we can draw several conclusions. Most generally, defining resources in terms of their role in attaining goals helps offer more clarity to the construct. Second, there is a great deal of work to be done to understand how individuals determine the value of their resources. We have offered several directions from motivation theory (e.g., self-determination theory) and the strategic management literature (e.g., the resource-based view) that might help to fill some of those gaps. Third, resources fluctuate following one of several trajectories; examination of these trajectories opens up several avenues for future research. Fourth, we know little about resource conservation processes, and there is ample opportunity for better understanding resource acquisition processes. In particular, COR offers a partial explanation of why individuals invest resources to acquire new resources, but integration with other theories (e.g., social information processing theory) may help to complete that understanding. Finally, resources have been measured inconsistently, and research designs need to better match the dynamic nature of COR theory. We offered several suggestions, both in measurement and design, to help push the literature forward toward better tests of COR theory.

When concluding a rejoinder to the criticisms of COR theory, Hobfoll somewhat pessimistically notes that it will "inevitably move from a lead reference, to a central reference, to a minor point, to a footnote" (2001b: 420) and the quality of a theory is determined by how

long it takes to move through that progression. At present, it seems that COR theory has moved to a central reference in organizational behavior. Given the present attention being paid to COR theory, we are betting that the move to minor point and footnote will take quite some time. It is our hope that, in some small way, this review helps to prolong the progression.

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