Using Life-Span Models in Industrial-Organizational Psychology: The Theory of Selective Optimization With Compensation

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Life-span models and their emphasis on individual differences in aging and development fit perfectly with industrial-organizational (I-O) psychology's underlying theoretical assumptions. Furthermore, certain life-span metatheories can provide an overarching framework from which to understand various I-O research areas. This article attempts to demonstrate how a specific life-span model of successful aging—selective optimization with compensation (SOC)—can be used as a metatheory for 3 specific areas of I-O psychology: work–family conflict, leadership, and organization-level functioning. Finally, methodological issues that researchers should consider when using the SOC model in the I-O arena are also discussed.

Life-span developmental psychology focuses on the study of "constancy and change in behavior throughout the life course" (P. B. Baltes, 1987, p. 611). This approach to developmental psychology emphasizes the fact that behavioral changes (i.e., individual development) can happen at any point during the life course and that there are large individual differences that exist in aging (P. B. Baltes, 1993; P. B. Baltes, Reese, & Lipsitt, 1980; Brandstädter, 1984; Schaie, 1996). A large group of longitudinal studies have empirically supported the viewpoint that aging is not a general and uniform process and that individuals age very differently (e.g., Busse & Maddox, 1985; Schaie, 1983, 1996; Thomae, 1979). Another major proposition derived from life-span research is that any process of development involves both gains and losses for an individual (P. B. Baltes, 1997; P. B. Baltes & Kliegl, 1986; Labouvie-Vief, 1982). Empirical and theoretical studies have demonstrated that the lifelong gain and loss dynamic in development does seem to hold true (P. B. Baltes, Dittmann-Kohli, & Dixon, 1984; Dixon & Baltes, 1986).

Life-span models and their emphasis on individual differences in aging and development would seem to mesh well with theories in industrial-organizational (I-O) psychology. For example, most domains of I-O psychology (e.g., leadership, performance appraisal, personnel selection, motivation) are based on the premise that individual differences in performance do exist and that these differences play a large role in work performance and job satisfaction.

Life-span models have been used in I-O psychology in specific areas such as aging and workplace issues (Sterns & Doverspike, 1989; Sterns, Matheson, & Schwartz, 1990; Sterns & Miklos, 1995). For example, in the area of career development, Sterns (1986) presented a career model that (a) recognizes the interaction of people and their environment and (b) realizes that changes and decisions with one's career can be made at any point in time.

Perhaps more important, certain life-span models are clearly metatheories that can be applied to many different variables and situations. The lack of metatheories in I-O psychology is something that has been discussed as a major shortcoming in the literature. For example, it has been pointed out that one critical problem for I-O psychology to address is the area's seeming inability to "encode cumulative research knowledge in such a way that it is stored and used in a useful fashion" (Campbell, 1990, p. 68). In the same vein, it has been argued that I-O psychology needs more comprehensive theories that are based on well-defined and well-researched psychological processes (Schuler, 1999). We believe that using certain metatheories provided by life-span psychology can help address this weakness in I-O psychology.

This article attempts to demonstrate how a specific life-span model of successful aging—selective optimization with compensation, also known as SOC (M. M. Baltes & Carstensen, 1996; P. B. Baltes & Baltes, 1990b; P. B. Baltes et al., 1984; Marsiske, Lang, Baltes, & Baltes, 1995)—can be applied in I-O psychology. Specifically, we focus on how SOC can be used as a metatheory in three separate I-O research areas. We hope that these examples provide research-

ers with ideas for how one could use life-span metatheories such as SOC in future I-O research.

The Theory of Selective Optimization With Compensation

The SOC model developed by Margret Baltes, Paul Baltes, and their colleagues provides a framework with which to understand an individual's successful developmental process across the entire life span (M. M. Baltes & Carstensen, 1996; P. B. Baltes, 1997; P. B. Baltes & Baltes, 1990a; P. B. Baltes et al., 1984; P. B. Baltes, Staudinger, & Lindenberger, 1999; Freund & Baltes, 1998; Marsiske et al., 1995). *Successful development* is theoretically defined as the maximization of desirable outcomes and the minimization of undesirable outcomes. The definition of *successful* is, of course, dynamic and will be influenced not only by where in the life course a person currently is but also by personal and cultural factors (P. B. Baltes et al., 1999).

The SOC model builds on the premise that people's resources (mental, physical, and environmental) are limited at any one specific point in time and that opportunities (e.g., education, starting a family) or losses (e.g., age-related deficiencies) arise that require choices about the allocation of these limited resources. Three general strategies—selection, optimization, and compensation—can be used to deal with developmental opportunities or losses successfully. Although the exact operationalization of these three strategies can change depending on the context in which they are used, they are defined generally as follows. *Selection* involves deciding on which goals and outcomes to undertake. Furthermore, selection is divided into two categories: elective selection and loss-based selection. *Elective selection* refers to instances in which an individual's selection of goals is not based on losses (e.g., choice of education over sports). For example, does one choose to pursue many goals at once or does one concentrate only on the most important (i.e., determine a goal hierarchy)? *Loss-based selection* occurs when a loss of some goal-relevant mean (e.g., decline in physical or mental ability, loss of money) pressures an individual to make changes in his or her goals. *Optimization* refers to the allocation or refinement of resources as a means of achieving goals (e.g., changing or enhancing one's personality profile to achieve certain goals; Staudinger & Pasupathi, 1998). An employee could attempt to become more sociable with coworkers to increase his or her network and, thus, increase his or her support group in the workplace. Another example of optimization would be exerting extra effort in one's job to achieve higher levels of performance. A final example of optimization could involve an employee enhancing his or her existing skills (e.g.,

computer skills, communication skills, management skills) to help achieve a certain set of goals. *Compensation* involves using compensatory processes (i.e., new or alternative means) to maintain a certain level of functioning in a specific domain when faced with losses. As pointed out by a reviewer, these compensatory strategies can be divided into external and internal practices. An example of *external compensation* is a manager hiring an assistant to help her complete her duties when she realizes that, because of her failing health, she can no longer complete them on her own. An example of *internal compensation* is the use of impression management by employees so that losses are less evident or are seen by others as less important (Abraham & Hansson, 1995).

A strength of the SOC model is that it can be applied at several levels of analysis and can incorporate several different units of analysis (M. M. Baltes & Carstensen, 1998; P. B. Baltes & Baltes, 1990a). For example, using SOC as a framework, one can consider different levels with respect to outcome criteria (e.g, general personal functioning vs. a specific behavioral domain) and with respect to phenomenon to be studied (individuals, dyads, groups, and organizations). (For a more detailed review on examining SOC in a collective—or multiperson—context, see M. M. Baltes & Carstensen, 1998.)

For the most part, prior research has tested the SOC model in elderly populations. Elderly adults as a population obviously face the largest resource losses (physical and mental), and thus the effect of using SOC strategies effectively to maximize gains and minimize losses could be great. For example, elderly participants who reported using SOC-related life-management behaviors had higher scores on indicators of successful aging (Freund & Baltes, 1998). The SOC model also has been tested successfully with the elderly in the work arena. Abraham and Hansson (1995) found a positive relation between the use of work-related SOC strategies and older employees' subjective ratings of competence maintenance and goal attainment. As mentioned earlier, these studies have examined the use of SOC in the elderly in which resource shortfalls and tough allocation decisions become more pronounced for almost everyone in the cohort. However, recent research also has examined SOC in arenas in which resource allocation problems are not brought on by age per se but by social choices and developmental opportunities (Lerner, Freund, De Stefanis, & Habermas, 1999; Wiese, Freund, & Baltes, in press).

Lerner et al. (1999) demonstrated how the SOC model could explain developmental regulation in adolescents. Adolescents, as all people, face resource limitation issues (e.g., Do I put extra time into sports or do I take a prep course for the SAT this summer?), and by using SOC strategies, adolescents also should be able to maximize their developmental potential.

Recent research by Wiese et al. (in press) is especially pertinent to this article in that it involved work-related issues. The theory of SOC was applied to the pursuit of career-related and partnership-related goals in young professionals. They found that participants who reported using more SOC behaviors also reported higher levels of global and domain-specific well-being.

In summary, the SOC model has been shown to predict successfully in "developmental" situations that are not necessarily age-dependent. It is in this vein that we wish to talk about the SOC model and its potential use in the I-O arena. In the following sections, we discuss in more detail how SOC may help provide a metatheory framework for three specific areas of I-O: work–family conflict, leadership, and organization-level functioning. Furthermore, we have included testable propositions to demonstrate specifically the usefulness of SOC to these areas. It should be pointed out at this point that we in no way intend to assert that this is the entire plethora of research potential for SOC in I-O psychology. Rather, we intend for these few examples to demonstrate the usefulness and flexibility of the SOC model and to show the wide range of possibilities for potential future research. Finally, we also discuss some methodological issues that researchers should consider when using the SOC model in the I-O arena.

Work–Family Conflict

Managing the conflict between work and family is increasingly a challenge for employees, especially as greater numbers of households change from single-earner to dual-earner ones. When the conflicting pressures between job and family become incompatible so that participation in one role is made more difficult because of participation in the other role, work–family conflict is said to occur (Greenhaus & Beutell, 1985). A considerable amount of recent research has focused on the causes and consequences of conflict between work and family (Bhagat, Allie, & Ford, 1995; Cooke & Rousseau, 1984; Frone, Yardley, & Markel, 1997; Netemeyer, Boles, & McMurrian, 1996; Thompson & Blau, 1993). A recent meta-analysis reviewed all published studies that examined work–family conflict and job–life satisfaction (Kossek & Ozeki, 1998). A consistent negative relation was found between work–family conflict and both satisfaction measures. The authors also stated that future research should focus on better methodology, sample specificity issues, and better integration of organizational policy and role conflict perspectives.

Interestingly enough, Kossek and Ozeki (1998) did not recommend looking into the individual differences that may help explain why some people deal with work–family conflict better than others. It seems as

though work–family conflict research, for the most part, has not focused on individual differences in success at handling work–family conflict. For example, models of such conflict (Frone et al., 1997) do not take into account personality variables (Rosenbaum & Cohen, 1999). This disinterest in individual variability is somewhat surprising given that research has shown that organizational-level policies designed to positively effect work–family satisfaction are only marginally effective (Goff, Mount, & Jamison, 1990; Solomon, 1994). For example, a study by Goff et al. found that an on-site child care center did not reduce employee work–family conflict or absenteeism. Furthermore, nationwide employee surveys have shown that even when company work–family initiatives (e.g., work–family seminars, on-site day care, telecommuting) are valued by employees, deeply embedded organizational structures and beliefs (e.g., managers must be in physical proximity to subordinates, use of flextime and telecommuting jeopardizes careers) inhibit their use. Given these problems with organizational-level policies, it seems as though the most direct way to help workers deal with work–family conflict is to discover which individual strategies help individuals deal with this conflict successfully and to train other individuals to make use of these strategies.

There is some limited research, however, that has considered the individual-level variables (Bhagat et al., 1995; Frone, Russell, & Cooper, 1995; Repetti & Wood, 1997; Rosenbaum & Cohen, 1999). The results of these studies have shown that individual-level variables can help predict the impact a stressor (e.g., work–family conflict) will have on a person's physical and mental well-being. For example, Frone et al. found that the more self-focused attention an employee reported, the lower his or her severity of depression and reported somatic symptoms. More recently, Rosenbaum and Cohen (1999) found that women who possessed self-control skills (i.e., resourcefulness) were less stressed by handling multiple roles than were women who did not possess these skills. Thus, the research suggests that individual-level variables can moderate the impact of work–family conflict. However, although research has begun to examine the moderating influence of individual-level variables on the impact of work–family conflict, no model has been provided with which to theorize about how people successfully handle work–family conflict. We believe that the SOC model can provide such a framework.

By definition, work–family conflict is a situation in which the available resources of time and energy are insufficient to meet the conflicting demands of work life and family life. Because the theory of SOC hypothesizes (and research supports) that, when faced with the limitation of resources (e.g., time, energy), those who use SOC strategies are more likely to maximize gains and minimize losses, it is plausible to assume that individu-

als who show SOC behaviors will be more successful at dealing with work–family conflict. For example, with the onset of family responsibilities (e.g., marriage or birth of a child), one's resources become stretched, and the use of SOC behaviors will determine whether a person deals with these issues successfully (i.e., maximizes gains and minimizes losses). For example, one's goal hierarchy may change from focusing on multiple goals (e.g., career, social life, sport activities) to focusing on being successful in only two arenas (work and family). Furthermore, an individual could choose to focus on a limited number of work goals (e.g., focus only job performance and no longer on organizational networking) or family goals (e.g., choose to focus on immediate family and not extended family) given that his or her resources have become more limited. All of these examples, of course, are forms of elective selection.

> Proposition 1: Individuals dealing with work–family conflict who report using selection strategies will handle work–family conflict more successfully.

Next, an individual must decide how to optimize all the goal-relevant means at his or her disposable (e.g., time allocation, acquiring new skills or resources) to achieve the goal of success in both work and family. For example, what amount of time will be allocated to work and what amount to family to achieve the best overall results? Furthermore, what individual skills (e.g., organizational, technological) could be improved to help ensure goal completion?

> Proposition 2: Individuals who report using optimization strategies to deal with work–family conflict will handle work–family conflict more successfully.

Finally, an individual can compensate for the losses at work with a variety of means. For example, an employee could increase his or her own effort or maintain their prior workload through the use of assistance, that is, an individual could increase the efficiency with which he or she uses the time allotted to their work (e.g., eat lunch at their desk while working). On the other hand, they could attempt to give more responsibility to subordinates to decrease their workload.

> Proposition 3: Individuals who report using compensation strategies to handle work–family conflict will handle work–family conflict more successfully.

The first empirical evidence in support of these hypotheses is found in the Wiese et al. (in press) study. Those results indicated that individuals who used SOC-related strategies to deal with partnership and work careers reported higher levels of global and domain-specific well-being (to clarify how SOC behaviors are operationalized, examples from Wiese et al., in press, can be seen in the Appendix). These relations were quite robust and held when rival predictors (e.g., "Big-Five" traits) were controlled for. Specifically, both the processes of optimization and compensation were strongly related to successful development, whereas selection was not. Furthermore, the authors concluded that because the goals studied (career and family) were very important to all participants, a ceiling effect might have come into play with respect to selection, that is, these goals already may have been important to these individuals before the study assessed them. Thus, if younger adults had been studied, selection may have played a more important role.

In summary, both theory and research would suggest that SOC-related behaviors are related to successful work–family conflict. Future research should attempt to test whether employees who use SOC strategies do indeed deal more effectively with work–family conflict. Furthermore, this research should include other predictor variables (e.g., time management abilities, personality constructs) to ensure that SOC-related behaviors are uniquely related to the successful handling of work–family conflict. If these studies prove fruitful, future research could attempt to develop training programs that teach individuals to use SOC-based strategies to deal with both work and family demands successfully.

SOC and Organizational Leadership

Leadership often is described in terms similar to those used by Colonel Larry Donnithorne, former administrator and professor at the United States Military Academy at West Point, who defines leadership as "influencing other people toward the achievement of shared goals" (Donnithorne, 1993, p. 7). We believe that this is a good definition, but it leaves out one major contextual issue that defines almost all true leadership efforts—the lack of adequate resources to accomplish the desired goals. Thus, we see clear similarities between the situations in which leaders often find themselves and the situations for which the SOC model was originally developed: In both cases, a variety of important resources (cognitive, physical, monetary, temporal, etc.) are lacking, but the goals requiring those resources remain important and valued.

More specifically, the SOC model (P. B. Baltes & M. M. Baltes, 1990a) is an attempt to explain how individuals maintain acceptable levels of performance in valued activities over time despite resource deficiencies brought about by age-related and non-age-related issues (e.g., birth of a newborn). Although leadership

from any theoretical perspective is a multidimensional phenomenon (e.g., Avolio & Bass, 1988; Chemers, 1997; House et al., 1999), we see one aspect of successful organizational leadership as being able to help others (as well as oneself) maintain acceptable levels of performance in valued activities over time, despite fluctuating levels of resources. For leaders, these fluctuating resources could include tangible resources, bases of power, and time demands. Thus, we believe that the SOC model could be applied usefully in this domain.

In addition, the field of leadership has long been criticized for lacking in theory and as being a largely disorganized collection of findings (e.g., Gemmill & Oakley, 1992; Meindl, Ehrlich, & Dukerich, 1985). Although some have proposed more comprehensive models of leadership (e.g., the integrative theory of leadership; Chemers, 1997), the field is still in need of greater attention to integration of accumulated findings. We propose here several aspects of disparate existing leadership theories that can fit into the larger integrative framework provided by the SOC model. Furthermore, we identify several testable hypotheses that logically flow from thinking of leadership in terms of SOC. In short, we argue that leaders who manage their myriad resources through selection, optimization, and compensation strategies are more likely to be successful than are those who do not.

Selective Optimization-Related Strategies and Leadership

Selection strategies in SOC are those in which a person chooses a limited range of important activities on which to focus energy and attention to ensure that the most valued activities continue at an acceptable level despite diminished resources. For example, the president of a small consulting firm may intend to submit proposals to two organizations, but both proposals have the same deadline. Assuming the resources of person-hours are limited, the president can choose between doing the best job possible on one of the proposals and letting the other slide or dividing the time between the two, with neither being as good as it possibly could have been with more attention. We would argue that, in the long run, a manager who is able successfully to determine the chances for having the winning bid on the two proposals and who pursues that proposal to the best of the firm's ability will be more successful than the manager who tries to do both proposals in a substandard way (of course, other possibilities include attempting to increase for the short term the available person-hour resources to do high-quality work on both proposals, and this would be an example of a compensation strategy).

Resource allocation to subordinates is another example of a selection problem that leaders face. Organizational leaders rarely have sufficient resources to accommodate the wishes and desires of all of their employees and must allocate those resources to subordinates unevenly to best achieve organizational goals. SOC in this context suggests that successful leaders are those who rationally select and reward the most valued subordinates and who find ways to maximize the value of the available resources to subordinates. For example, in some organizations, annual raises comprise a large across-the-board "cost-of-living adjustment" and a small merit-based component (or no merit component), whereas in other organizations, the across-the-board portion is small and the potential merit-based raise is large. From a SOC perspective, we would advocate the latter strategy.

Similarly, dependency theory (Bartol & Martin, 1988, 1989, 1990) suggests that leaders will allocate valued resources inequitably, based largely on the leader's degree of dependence on individual subordinates. Recent research (Barham, Gottlieb, & Kelloway, 1998; Klein, Berman, & Dickson, 2000) suggests that leaders do in fact allocate resources in accord with dependency theory. Thus, dependency theory can be thought of in SOC terms as selective optimization. We further hypothesize that successful managers attend more to these issues than do unsuccessful managers and that the level of attention to dependencies for successful leaders increases as available resources decrease.

> Proposition 4: Managers identified as *successful* will report greater attention to management of subordinate dependencies through unequal allocation of resources (i.e., selective optimization) than will managers identified as *unsuccessful*.

An underlying assumption of Proposition 4 is that a leader must understand which resources are important to his or her subordinates, and House and Mitchell's (1974) Path–Goal Theory of Leadership is clearly relevant to this issue. Path–Goal Theory argues that the task of leaders is first to determine what their individual subordinates value and then to clarify for each subordinate a plan by which completion of tasks that are important to the organization will lead to acquisition of the resource valued by the employee. In other words, the leader clarifies the path (i.e., the organizationally relevant behaviors required by the supervisor) to the subordinate's goal (i.e., the subordinate's desired reward). From this perspective, anything that (a) a subordinate values and (b) a leader can control becomes a resource. For example, it is often the case that rewards other than monetary ones are highly desired by employees. The manager who is able to discern which employees would feel rewarded by receiving additional vacation days and which would only

feel rewarded by increased salary will be more effective than the manager who is unable to make this determination and act on it.

Proposition 5: Leaders who report spending more time and effort learning what their subordinates value (i.e., expanding the available pool of valued resources) will be more successful than those who report less time and effort in this regard.[1]

Proposition 6: Leaders who report tailoring their negotiations with individual subordinates to address the individual subordinates' desires will be more successful than those who do not report engaging in this behavior.

This also implies that the most effective leaders will be those who consider a wider than normal range of resources when establishing goals and rewards for employees. For example, one colleague tells us of an organization in which an old, rather ugly statue of a dog came to be known as the "Top Dog" award, which was presented to the work group that was most productive each month. The opportunity to display the Top Dog Award in your work group area thus became a resource for which groups eagerly competed. The leader had thus created a new resource at essentially no cost to the organization. Schein (1992) said that the statue had taken on the status of an organizational symbol and, as such, had meaning for those people socialized into that organizational culture. Deal and Kennedy (1982) described a wide variety of organizations and managers who have developed the use of symbols and rituals to create valued resources for employees at little cost to the organization.

Proposition 7: Leaders who attend to the use of symbols and other low-cost, high-impact resources within an organization will be more effective at managing subordinates than those who do not attend to these aspects of organizational culture.

Finally, subordinates who do not receive the rewards to which they feel entitled may come to believe that they are not appreciated, or that they would fare better elsewhere. Alternatively, they may try to threaten the superior with quitting in hopes of securing valued resources in this way. Klein et al. (2000) reported that, when presented with hypothetical cases of

this sort, employees reported a moderating effect. Managers presented with a threat to quit from a high-performing, hard-to-replace subordinate were seen to be more likely to provide valued resources (in this case, part-time status) to that employee. Conversely, if the threat came from a low-performing or easy-to-replace performer, managers were seen to be less likely to provide the desired resources. In other words, managers were seen to be actively managing their scarce resources in both positive and negative directions: They would work extra hard to keep valued performers who explicitly threaten the dependency relationship but would take steps to make it even more likely that nonvalued performers would sever the relationship. In other words, they were engaging in selective optimization. Furthermore, there was significant variability in the extent to which managers were perceived to engage in this analysis.

Proposition 8: The relation between unit-level turnover through voluntary attrition and quality of employee work will be moderated by the extent to which managers attend to management of dependencies through unequal allocation of resources.

Compensation-Related Strategies and Leadership

The SOC strategy of compensation involves finding ways to reduce the impact of functional losses occurring over time. Abraham and Hansson (1995) noted that one important means of this in the workplace is to engage in impression management, so that losses are less evident or are seen by others as less important. To us, this sounds as if it is related to "self-monitoring" (Snyder, 1974, 1979). According to self-monitoring theory, people in social settings attempt to manage the impressions they make on others by constructing patterns of behavior that are appropriate to the current context, based on information about the situation, interpersonal notions of behavior appropriateness, and information about one's inner feelings, attitudes, and dispositions (Snyder, 1987). Of course, people do differ in the degree to which they use this situational and dispositional information and in the degree to which they attempt to present themselves favorably situation to situation versus maintaining a consistent self-presentation.

Several researchers have presented evidence that high self-monitors are more effective as leaders in at least some situations (e.g., Anderson & Thacker, 1985; Ickes & Barnes, 1977), suggesting that those who engage in impression management behaviors are likely to be seen by others as more effective. SOC suggests that more successful managers would engage in more impression management (i.e., compensation) activities as

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[1] It is important to note that this proposition may be moderated by the number of subordinates reporting to a given leader. When a leader oversees a large number of people, it becomes impossible to focus on the preferences of each individual subordinate, and strategies focusing on determining what the group of subordinates in general value may be more appropriate.

various resources diminish over time. Longitudinal research in this regard would be extremely valuable, especially given research suggesting that the positive relation between leadership and self-monitoring may not always hold (e.g., Anderson & Thacker, 1985; Ellis, 1988; Thomas, 1998, 1999; Wentworth & Anderson, 1984).

> Proposition 9: Leaders who are high in self-monitoring (i.e., who heavily use the compensation-related strategy of impression management) and who are facing loss of personal or organizational resources will be more successful than those who are low in self-monitoring (i.e., who do not attend to managing others' impressions).

In summary, we posit that one important aspect of effective leadership is the ability to allocate scarce resources in ways that facilitate the accomplishment of organizational and personal goals. This involves a variety of skills and abilities, including the ability to discern the relative importance of competing goals in an ambiguous situation, the ability to determine what individual employees perceive as valued resources to reduce the scarcity of resources, and the willingness to make difficult choices in the resource allocation process. We find suggestions of support for these arguments in several sources, including, for example, Mumford's model of skill-based leadership (Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000; Zaccaro, Mumford, Connelly, Marks, & Gilbert, 2000) and the importance of determining what followers value as outlined in Path–Goal Theory (House & Mitchell, 1974). Future research should specifically address the effect of the use of SOC strategies on both objective leadership outcome measures and on subjective perceptions of leadership effectiveness. If such an impact is found, leadership development and training programs could begin explicitly to incorporate training in the use of SOC strategies in a leadership context.

SOC at the Organizational Level of Analysis

M. M. Baltes and Carstensen (1998) posited that the SOC model can apply to behavior in dyads and groups as well as to individuals. We believe that the model also can apply to organizational behavior, although with some important caveats and modifications. In this section, we discuss the model's applicability to organizational functioning, along with key differences in how the model applies at these different levels of analysis.

Organizations also can be described as having life cycles, and Schein (1992) described the important changes that occur as organizations face each stage in the cycle. However, unlike humans, organizations do not inevitably suffer permanent loss of resources. For example, organizations often face decrements in performance and loss of valued resources, such as market share, experienced employees, and reputation, but these decreases are not necessarily permanent. This is because organizations, unlike individual humans, have the capability to reenergize themselves, to bring in new members, to merge with other organizations, and to engage in several other strategies that stave off or reverse the various declines in valued resources.

In other words, when resources are lost for people, they are typically lost for good (though there may be ways to correct for the loss; e.g., hearing aids to compensate for loss of hearing). Organizations, however, can acquire new resources to compensate for lost ones. For example, they can hire new people, acquire other organizations, take out loans to update technology, and implement an advertising campaign to restore lost resources. Nonetheless, when faced with the decline of valued resources, organizations may engage in strategies that are conceptually similar to those described by the SOC model.

We thus propose that organizations that engage in behaviors and strategies that are conceptually similar to those suggested by the SOC model are more likely to rebound successfully from loss of resources than are organizations that do not engage in these strategies. However, it is generally more difficult for an organization to embark on a course of action than it is for an individual, because of the requirement of coordinated action in organizations. In addition, there are often cultural and regulatory barriers that prevent organizations from engaging in behaviors that would be beneficial to them.

Selective Optimization Strategies at the Organizational Level

For organizations facing scarcity of resources, selection can be choosing which markets to concentrate on and which to let go. It can refer to product development decisions. It can refer to deciding to spin off segments of the company. It can refer to deciding whether to focus on training or on selection. In other words, it can refer to any of several types of decisions that organizations make to focus their attentions and energies in one or a few areas at the expense of others.

One example of selective optimization at the organizational level of analysis that fits within the theoretical framework provided by SOC is organizational goal-setting and management by objectives (MBO). In large part, this is a larger scale implementation of the goal-setting principles described by Locke and Latham (1990), who noted, for example, that one of the mechanisms by which goal-setting has its enhancing effects on performance is by focusing attention on the task at hand

and away from other potentially competing tasks. This holds true for both individuals and organizations—when an organization pursues one goal or objective (e.g., cutting costs), it is generally at the expense of other potential goals or objectives (e.g., increasing employee benefits). Thus, the process of establishing objectives in some areas is inherently also a process of abandoning other presumably less important areas of activity.

In other words, establishing such goals and objectives is a form of selection in the SOC sense, akin to the oft-cited example of the pianist Horowitz, who narrowed his repertoire (i.e., engaged in selection) as he aged and faced decrements in performance-related skills. Furthermore, the increased focus of organizational effort toward achieving the new organizational goals and objectives is an act of optimization, akin to Horowitz practicing his selected works more than previously was the case. Given that there is evidence that the installation of MBO programs is generally effective at increasing performance in the desired areas (e.g., Guzzo, Jette, & Katzell, 1985; Rodgers & Hunter, 1991), we thus argue that the prescriptions of the SOC model also hold when the organization is the acting agent, rather than the individual.

> Proposition 10: Organizations in which the leadership implements organization-wide goal and objective systems (i.e., engages in organization-level selective optimization) in response to threats of reduced resources subsequently will perform better on the chosen dimensions than will organizations that do not implement such systems.

Another aspect of selection is the recognition that increases in focus on one goal or set of goals leads, by definition, to decreases in focus on other goals. Although there is little if any research on the process by which organizations choose to give up on some areas to focus on others, we believe that there will be inevitable decrements in performance on other dimensions when organizations choose to establish goal and objective systems. Organizations that recognize the trade-offs that they are making will, we believe, be more successful than those that do not have this recognition. This is congruent, for example, with Quinn and Rohrbaugh's (1983) Open Systems Model of organizations, in which they described organizations as existing along two axes—internal versus external focus and structure of flexibility versus structure of control. To move toward a structure of control is by definition to move away from a structure of flexibility, for example, and we propose that organizations that recognize and attend to the implications of such a choice (i.e., who recognize the losses that will occur as a result of the shift as well as the desired gains) will be more successful than will those that do not recognize and attend to

these organizational implications.[2] Kerr (1975) has further made this point quite eloquently in his classic article "On the Folly of Rewarding A While Hoping for B," in which he noted that there are often unintended consequences of organizational actions. To the extent that organizations attend to the possibility of unintended consequences, they will be more successful and will in fact be more in line with the prescriptions of the SOC model. This is analogous to the situation if, for example, the pianist Horowitz had narrowed his repertoire as a result of declining resources but had failed to recognize that he would no longer be asked to perform the newly narrowed set of music.

> Proposition 11: Organizations that report high levels of attention to and discussion of activities that will not receive attention on implementation of goal and objective systems will report greater success and greater satisfaction with the goal and objective system than will those that report low levels of attention and discussion in this regard.

Compensation-Related Strategies at the Organizational Level

Compensation at the organizational level of analysis refers to the use of new organizational means to achieve selected organizational goals. Thus, there may be cases in which this involves individuals (e.g., the organization makes decisions about how to use individual employees), but it also may involve organization-level action (e.g., the organization decides to acquire another firm to facilitate the organization's entry into a new market).

An example of the former case occurred when Silicon Valley firms realized that they could not find enough qualified high-tech professionals in the United States. They began for the first time to recruit individuals from overseas (i.e., they used a new means—overseas recruiting—to achieve the organizational goal of accomplishing high-tech product development). An example of the latter has occurred repeatedly when Microsoft has acquired small software companies that have developed niche expertise that Microsoft does not have, to integrate their products into the Microsoft Office suite of programs, for example. Microsoft is then using a new means—the integration of the acquired company—to achieve an existing organizational goal of enhancing the Microsoft product line.

A hallmark of both these approaches is that they do not reflect the phenomenon often referred to as

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[2]Quinn and Rohrbaugh's (1983) model is only one of many similar conceptualizations of organizational dimensions, with increased emphasis on one end of a continuum entailing decreased emphasis on the other.

"not developed here" (NDH). This refers to the view held in many organizations that ideas and products that are not generated internally are inferior to those developed internally. This leads us to the conclusion that successful organization-level compensation requires the willingness to embrace ideas, technologies, people, and products that are developed externally to the organization.

> Proposition 12: Organizations that adhere to the NDH mentality will be less successful in their attempts to respond to organizational challenges than will organizations that seek to integrate external resources into the existing organization.

Methodological Issues

Although many things need to be considered when one attempts to conduct a sound study, we highlight two issues that we believe are critical for researchers to consider when conducting SOC research in the I-O psychology. The first issue concerns testing for moderators of the relations between SOC behaviors and positive outcome criteria; the second issue revolves around the use of longitudinal research and subjective outcome criteria.

Moderation of the SOC Relation With Positive Outcome Criteria

As mentioned previously, Abraham and Hansson (1995) found that SOC-related strategies were positively related to older employees' subjective ratings of competence maintenance. However, they also found evidence that characteristics of the job and workplace may affect the relation between SOC and job effectiveness. Specifically, they mentioned *job latitude* (i.e., job autonomy) as a potentially important job characteristic. We also believe that *job autonomy* could be a moderator of the relation between SOC strategies and job performance. For an employee to use SOC-related strategies successfully (e.g., selection of certain job tasks in which to specialize) he or she requires autonomy on the job. If your job allows you little autonomy, you will not be able to exhibit SOC-related behaviors whether you desire to or not. Thus, SOC strategies should only be related to performance in jobs in which employees have the autonomy to employ them. We believe that this is only one example of many job characteristics that could affect the use of SOC-related behaviors. Other examples could be job scope, hierarchical level in the organization, or organizational willingness to allow innovation. Although the moderators previously mentioned focus on aspects of the job and organization, another set of potential moderators might be attributes of the individual in a societal context, that is, many of the SOC-related strategies require choices (e.g., what goals to follow, how to optimize, and how to compensate), and we have assumed that these choices are readily available to all individuals. However, the argument could be made that specific individual circumstances (e.g., sex, socioeconomic class) could affect an individual's ability to demonstrate SOC-related behaviors. For example, it is obvious that an individual of higher socioeconomic status would have more options (i.e., SOC-related strategies) when dealing with work–family conflict (e.g., able to afford child care or housekeepers) than would an individual with little monetary means. Thus, in general, we would suggest that researchers consider potential moderators with respect to characteristics of the investigation when testing the SOC model.

This same issue of potential moderating variables holds true for studies conducted at the organizational level. Organizations compete in many different types of environments. Some of these environments undoubtedly make it easier to undertake SOC-related behaviors than do others (e.g, there may be fewer opportunities for engaging in SOC strategies for organizations in highly regulated industries or when the labor market is very tight and thus highly transient). Researchers should keep this mind when attempting to test the SOC model at the organizational level.

Longitudinal Analyses and Objective Outcomes

To test the causality implied by the SOC model correctly in any of the areas mentioned previously, one needs a longitudinal design. Although a few of the studies mentioned did employ a longitudinal design, the two studies that fell into the work arena (Abraham & Hansson, 1995; Wiese et al., in press) were cross-sectional in nature (i.e., no temporal test of casualty). Furthermore, these work arena studies used subjective data. Although subjective indicators such as job satisfaction are of interest, it would be interesting to see if the use of SOC behaviors in the workplace actually leads to objective performance gains. Furthermore, when one considers the model of SOC at the organizational level, the use of objective indicators becomes even more crucial. In summary, future research should attempt to test the efficacy of the SOC model with longitudinal data and objective indicators of success (e.g., work performance). In cases in which longitudinal data collection is not possible, retrospective techniques may be acceptable alternatives.

Conclusion

In an age in which the field of psychology is highly specialized and subdivided and in which it is almost im-

possible to call one's self simply a "psychologist" without adding some modifier, we are heartened by examples of cross-specialty theory building and theory testing. Within the field of I-O psychology, cognitive psychology theories recently have come to the fore in areas such as leadership and culture. Clinical psychology has informed our efforts to address incivility in the workplace. Biological psychology has been influential in the design of virtual systems. The examples of enhanced theory development, although numerous, are overshadowed by the number of times in which theory development is impeded by lack of cross-specialization interaction.

The primary goal of this article was to demonstrate how a life-span metatheory (SOC) can provide a framework with which I-O psychologists can understand and explain different psychological processes in I-O research. By demonstrating how SOC can provide hypotheses for areas as diverse as work–family conflict, leadership, and organizational-level functioning, we hope that we have accomplished this goal. It is in the spirit of spanning specialization boundaries for the improvement of theory and practice that we have offered these propositions. We believe that the SOC model can serve as an organizing framework for a wide range of organizational behaviors related to coping with scarce or declining resources. Although the mechanisms may not be identical when transporting the theory across populations, from the elderly to the workplace, the constructs appear to us to hold true. Furthermore, we believe that using metatheories such as SOC that are provided by other fields such as life-span psychology can help I-O psychologists accumulate knowledge in an organized fashion.

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Appendix

Examples of Measuring the Use of Selective Optimization With Compensation (SOC) Strategies (from Wiese, Freund, & Baltes, in press)

Participants are asked to decide whether the target behavior or the alternative better describes them. Target behaviors reflect the use of SOC-related strategies. By asking the participant to focus on life in general or specific domains (e.g., work or partnership/family) one can introduce domain-specificity into the measure.

	Target Behavior	**Alternative**
Selection	I concentrate all my energy on a few things.	I divide my energy among many things.
Optimization	I keep working on what I have planned until I succeed.	When I do not succeed right away at what I want to do, I don't try other possibilities for very long.
Compensation	When things don't go as well as they used to, I keep trying other ways until I can achieve the same result I used to.	When things don't go as well as they used to, I accept it.

Note: From "Selection, Optimization, and Compensation: An Action-Related Approach to Work and Partnership," by B. S. Wiese, A. M. Freund, & P. B. Baltes, in press, *Journal of Vocational Behavior, 57.* Copyright in press by Academic Press. Adapted with permission.