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Something's Got to Give: The Effects of Dual-Goal Difficulty, Goal Progress, and Expectancies on Resource Allocation

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The current study developed and tested a model of the interplay among goal difficulty, goal progress, and expectancy over time in influencing resource allocation toward competing demands. The results provided broad support for the theoretical model. As predicted, dual-goal expectancy—the perceived likelihood of meeting both goals in competition—played a central role, moderating the relationship between relative goal progress and resource allocation. Dual-goal difficulty was also found to exert an important influence on multiple-goal self-regulation. Although it did not influence total productivity across both tasks combined, it did combine with other model components to influence the relative emphasis of one task over another. These results suggest that the cumulative demands placed by multiple difficult goals may exceed individuals' perceived capabilities and may lead to partial or total abandonment of 1 goal to ensure attainment of the other. The model helps shed light on some of the conflicting theoretical propositions and empirical results obtained in prior work. Implications for theory and research regarding multiple-goal self-regulation are discussed.

Keywords: multiple goals, resource allocation, dynamic self-regulation, expectancies, goal–performance discrepancies

Competing demands are increasingly pervasive in the workplace. As many organizations reduce costs through downsizing, remaining employees are often stretched thin by an increasing number of responsibilities competing for their time and attention. If employees' resources are insufficient to meet these increasing demands, then something's got to give. Such competing demands may necessitate difficult trade-offs, whereby high performance on one task comes at the expense of performance decrements on another (Erez, Gopher, & Arzi, 1990; Locke, Smith, Erez, Chah, & Schaffer, 1994; K. H. Schmidt, Kleinbeck, & Brockman, 1984). Unfortunately, relatively little is known about the dynamic processes by which such trade-offs are made as the goals are pursued over time. Although a nascent body of research has identified the progress made toward goal attainment (i.e., goal–performance discrepancies) as a key determinant of resource allocation across competing demands (e.g., Kernan & Lord, 1990; A. M. Schmidt & DeShon, 2007; Vancouver, 1997), this research has arrived at conflicting conclusions regarding the nature of this influence. For example, whereas Kernan and Lord (1990) found that participants allocated more time toward whichever of two goals they were making better progress toward, A. M. Schmidt and DeShon (2007) found precisely the opposite, with more resources allocated to whichever goal was in greatest need of attention. These results highlight the variable nature of the relationship between goal progress and resource allocation and suggest the need for a more complex model than has thus far been considered.

In the current study, we propose that expectations for the eventual attainment of the goals for both tasks—what we refer to as *dual-goal expectancy*—play a critical role, moderating the relationship between relative goal progress and resource allocation. We developed and tested a model of the causes and resource allocation consequences of dual-goal expectancy (Figure 1). In so doing, our model also provides insight into the effects of goal-difficulty manipulations implemented in multiple-goal contexts. Concurrent assignment of difficult goals for competing tasks may place demands that exceed individuals' perceived capacity, resulting in low dual-goal expectancies. As a result, simultaneous assignment of multiple difficult goals may not necessarily yield increased dual-goal performance (total productivity aggregated across all tasks), as might be expected from a direct extension of goal setting theory (GST) postulates (Locke & Latham, 1990). Yet, we propose that through dual-goal expectancies, dual-goal difficulty can substantially influence the subsequent patterns of resource allocation.

Thus, the current study seeks to introduce the concept of dual-goal expectancy and to highlight its importance in multiple-goal resource allocation. In so doing, our proposed model helps to reconcile conflicting results of existing research linking relative goal progress to resource allocation (e.g., Kernan & Lord, 1990; A. M. Schmidt & DeShon, 2007). Additionally, our model identifies key processes through which dual-goal difficulty (i.e., two moderate goals vs. two difficult goals) may influence resource allocation and performance in a dual-goal context. The critical components of the model and their interrelationships are detailed next.

Goal Progress as a Predictor of Subsequent Resource Allocation

Recent research on multiple-goal self-regulation has begun to provide insight into the influences on resource allocation and

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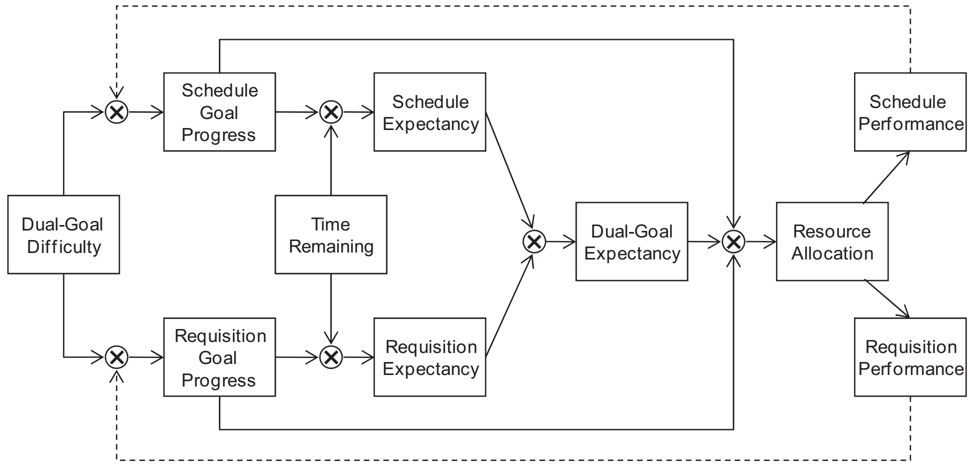

Figure 1. Theoretical model of multiple-goal self-regulation. Dashed lines represent reciprocal effects of cumulative schedule and requisition performance ($\sum_{i=1}^{t}$ *performance*$_i$, where t equals the round most recently completed) at the conclusion of one trial on the resource allocation processes for the subsequent trial. The multiplication symbol within a circle represents multiplicative/interactive relationships.

performance. This research has tended to adopt a control theory perspective (Carver & Scheier, 1998; Lord & Levy, 1994; Powers, 1973; Vancouver, 2000, 2005), which emphasizes the centrality of the progress being made toward goal completion in determining subsequent resource allocation.[1] Control theory proposes that discrepancies between desired and actual performance motivate individuals to take action to reduce these discrepancies, such as increasing the investment of time and effort, with larger discrepancies often resulting in greater responses (Bandura & Cervone, 1983; Campion & Lord, 1982; Matsui, Okada, & Inoshita, 1983; Powers, 1973). The results of these efforts are again perceived and compared against the goal, and the process continues.

Powers (1973) and Klein (1989) proposed that, all else being equal, greater priority is given to goals with larger discrepancies, as compared to goals closer to attainment. This proposition is consistent with arguments that discrepancies function as bottom-up attention regulators, with larger discrepancies directing more attention toward goal-relevant information (e.g., DeShon & Gillespie, 2005; Lord & Levy, 1994). Some support for these propositions has been found. In particular, A. M. Schmidt and DeShon (2007) examined the influence of goal progress and incentives on the allocation of time across two competing tasks. They found that, when the incentives for goal attainment were equivalent for both tasks, participants tended to allocate more time toward the task whose goal was furthest from attainment. Moreover, shifts in allocation over time reflected shifts in relative progress—that is, if performance on one task began to fall behind, participants allocated greater time to this more discrepant task to bring it back into line.

Yet, other work suggests a very different pattern. In one of the few explicit empirical studies of multiple-goal self-regulation, Kernan and Lord (1990) presented participants with two clerical tasks, with a difficult specific goal assigned for either one or both tasks. Under multiple-goal conditions, a main effect for discrepancies was found, such that smaller discrepancies led to higher goal prioritization, operationalized as goal commitment and allocation of effort. These results run counter to those reported earlier, creating uncertainty concerning the effects of goal progress on resource allocation. Thus, in an effort to account for the variable effects of relative progress on resource allocation, we next turn our attention to the role of expectancies in multiple-goal self-regulation.

The Role of Expectancies

When individuals face adversity in the course of goal pursuit, expectancies for eventual attainment can determine whether individuals persist or disengage (e.g., Bandura, 1991; Carver & Scheier, 1998; Locke & Latham, 1990), because low expectancies indicate that continued investments of time and effort are unlikely to pay off in the end. Two related determinants of expectancy beliefs are goal difficulty and goal progress (e.g., Tubbs, Boehne, & Dahl, 1993), because individuals are generally more confident about attaining goals that require less work to complete. Thus, as the gap between one's desired and actual progress increases, expectancies tend to decrease and may ultimately lead to disengagement. Likewise, as assigned goal difficulty increases, expectancies tend to decrease (e.g., Garland, 1982; Matsui, Okada, & Mizuguchi, 1981).[2] For this reason, GST suggests that care be

[1] Although proponents of GST and control theory have frequently debated the relative merits of these two theoretical approaches, we view them as complementary perspectives whose simultaneous consideration can help advance our understanding of the multiple-goal processes of interest.

[2] Research has shown that, whereas expectancy tends to decrease as goal difficulty increases, greater expectancy for attaining a given goal difficulty level tends to be associated with greater acceptance, effort, and performance (e.g., Garland, 1984; Locke, Frederick, Lee, & Bobko, 1984; Locke, Motowidlo, & Bobko, 1986). Nonetheless, the key point for our present purposes is the potential for goals to be set beyond a level that the goal seeker believes to be attainable, which can result in goal abandonment and performance impairment.

taken in the assignment of difficult goals, because goals set too far beyond what the individual believes to be attainable may fail to serve as a true guide for one's behavior (Locke & Latham, 1990). The association between expectancies and goal difficulty or goal progress has been a point of little contention in the single-goal literature (e.g., Bandura, 1991; Carver & Scheier, 1998; Tubbs, Boehne, & Dahl, 1993), and we expect it to readily generalize to the multiple-goal domain.

However, when facing multiple competing goals, an additional expectancy consideration may be particularly influential. We forward the construct of *dual-goal expectancy* to refer to individuals' beliefs regarding the likelihood of meeting both goals within the allotted time. Dual-goal expectancy is proposed to be a function of the expectancies for each individual task—specifically, expectancies for the two tasks are predicted to interact, because increasing confidence in one's ability to meet either goal may not translate into higher dual-goal expectancy unless expectancy for the remaining goal is sufficiently high as well. Just as expectancies influence persistence versus disengagement of single-goal pursuits, we propose that dual-goal expectancy plays a similar role with regard to the choice between actively pursuing both goals versus allocating the bulk of one's resources toward the pursuit of a single goal while disengaging from the other in part or in whole.

Specifically, we propose that when attainment of both goals is seen as probable (high dual-goal expectancy), increased time is allocated to the goal furthest from attainment—if individuals wish to attain the full array of demands placed on them, allocating resources according to need is a viable, if not essential, strategy. Yet, this is a potentially risky allocation strategy. Time invested toward the goal furthest from attainment may prove futile, with large amounts of resources allocated to a losing cause. This is compounded by the fact that time invested toward the most discrepant goal often comes at the expense of other demands, putting their attainment in jeopardy. Thus, our model conversely proposes that, when an individual believes that reaching both goals is unlikely (low dual-goal expectancy), resource allocation is strongly biased toward the goal that is closest to being met (all else being equal). By allocating more resources in this manner, individuals increase their chances of meeting at least one of their goals.

Dual-Goal Difficulty and Dual-Goal Expectancy

The previous discussion regarding dual-goal expectancy can provide insight into the effects of goal difficulty manipulations within a multiple-goal context. A core tenet of Locke and Latham's GST (Locke & Latham, 1990, 2002) is that difficult and specific goals lead to higher performance than vague and/or less stringent goals. GST posits that difficult and specific goals have their effects primarily through the allocation of time and effort to goal-relevant activities (Locke & Latham, 1990). As goal difficulty increases, a larger portion of one's resources must be allocated to the activity in question if the goal is to be met. For example, attainment of a moderately difficult goal might require 50% of one's available resources, whereas a more difficult goal might require 85%. Thus, pursuit of difficult goals leaves relatively few resources available for other purposes.

What are individuals to do when assigned difficult goals for two (or more) tasks that are each vying for the same limited pool of resources? Although the difficult assigned goals may each be attainable if they could be pursued in isolation, the combined resource demand may exceed the available supply, making attainment of both goals an exceedingly difficult proposition (e.g., Erez et al., 1990; Locke et al., 1994; K. H. Schmidt et al., 1984). Thus, the assignment of multiple difficult goals may not necessarily result in performance increases for all associated tasks, as one might infer from a direct generalization of goal difficulty effects. Rather, if an individual's resources are insufficient to meet the cumulative demand of multiple difficult goals, then something has to give, necessitating difficult decisions concerning how to divide one's time across the competing demands.

Our model proposes that assignment of difficult goals for two competing tasks (i.e., high dual-goal difficulty) results in low dual-goal expectancy, because concurrent attainment of both difficult goals represents an unlikely proposition. In turn, low dual-goal expectancy is predicted to influence resource allocation as detailed earlier, such that individuals allocate their resources primarily to only one of the goals in competition. Specifically, given equal valence for each of the goals in question (i.e., equal incentives or lack thereof associated with goal attainment; cf. A. M. Schmidt & DeShon, 2007), more resources are predicted to be allocated toward the goal closest to attainment. In contrast, assignment of moderate goals for two competing tasks (i.e., moderate dual-goal difficulty) is predicted to result in relatively higher dual-goal expectancy, such that attainment of both goals is seen as a realistic possibility. Given sufficiently high dual-goal expectancy, when assigned two moderate goals, more resources are expected to be allocated toward whichever goal is currently in the greatest need (i.e., the goal furthest from attainment at the time). Thus, through its effects on expectancy, dual-goal difficulty is posited to have important influences on relative resource allocation patterns and performance, although the effects on total resource investment and performance (i.e., summed across tasks) may be muted, at best.

Model Summary and Hypotheses

The theoretical expectations described earlier are summarized in Figure 1. Moving in the direction of the proposed causal flow, the model proposes that goal difficulty and prior performance interact in determining perceived progress for each task (Hypothesis 1). Progress toward each goal, in turn, is proposed to be a proximal determinant of task-specific expectancies. Moreover, consistent with the notion of velocity (Carver & Scheier, 1990, 1998), the strength of this relationship is expected to increase as the deadline draws near—early in goal pursuit, individuals may feel that even large discrepancies can be overcome (e.g., Campion & Lord, 1982), whereas large discrepancies may have more dire implications for one's expectations when little time remains to address them (Hypothesis 2). Task-specific expectancies are proposed to be positively and multiplicatively related to dual-goal expectancy, such that dual-goal expectancy is particularly high when expectancy for both tasks is high (Hypothesis 3). The model further proposes that dual-goal expectancy moderates the relationship between relative progress and resource allocation, such that high dual-goal expectancy is associated with greater time allocated to the goal furthest from attainment, whereas low dual-goal expectancy is associated with greater time allocated to the goal closest to attainment (Hypothesis 4). Likewise, through its effects on dual-goal expectancy, dual-goal difficulty is expected to have similar effects on resource allocation, with assignment of two moderate goals associated with greater time allocated to the goal furthest from attainment and assignment of two difficult goals associated with greater time allocated to the goal closest to attainment (Hypothesis 5). Finally, the resulting patterns of resource allocation are expected to exhibit strong and parallel effects on individual task performance, such that the more time allocated to each individual task, the greater the performance on that task (Hypothesis 6).

Method

Task Description

Seventy undergraduates (63% female) participated in a computer-administered concurrent-dual-task paradigm, with 5 observation periods per participant for a total of 350 observations. One task, referred to as the *scheduling task* (e.g., Earley & Kanfer, 1985; Schmidt & DeShon, 2007; Steele-Johnson, Beauregard, Hoover, & Schmidt, 2000), required participants to create nonredundant class schedules. Only schedules conforming to the task rules (e.g., no two marketing courses could be scheduled within 1 hr of each other) could be submitted. The other task, referred to as a *requisition task* (Kernan & Lord, 1990), involved processing and validating equipment requests for the same fictitious university. Participants were presented with forms requesting a variety of parts and equipment. Participants were required to scroll through a list of supplies stocked in the warehouse to determine the availability of each requested part and to fill the request appropriately. Additionally, participants were to reorder parts for the warehouse when the number of parts in stock fell below a specified reorder point. The two tasks were developed through pilot testing to be similar in complexity and time required to complete a single schedule or requisition. Participants were not permitted to submit incorrect schedules or requisitions and were informed when a submission attempt was invalid.

Procedures

After receiving training on the tasks and completing practice rounds, participants performed five dual-task trials. During each trial, participants had 7 min to complete five schedules and five requisition forms. A large red "End Trial Early" icon in the upper right corner of the screen provided participants with the option to end trials at any point during the 7-min trials, regardless of whether the tasks for that trial had been completed, although very few choose to do so.[3] The number of schedules and requisitions and the time available per trial were established through pilot testing to create a high level of goal competition and resource trade-offs, because it was very difficult for even the most proficient performers to complete all five schedules and all five requisitions in 7 min. Participants could view only one schedule or requisition at a time but were free to switch among that trial's schedules and requisitions as they saw fit.

Participants were assigned specific goals for the scheduling and requisition tasks, which varied in difficulty across two randomly assigned goal conditions—a *moderate goals* and a *difficult goals* condition. Participants in the difficult goals condition were assigned the two goals of correctly completing (a) 20 requisitions and (b) 20 schedules by the end of the final performance trial. Participants in the moderate condition where assigned the goals of correctly completing (a) 10 requisitions and (b) 10 schedules by the end of the final performance trial. The moderate goals were set, on the basis of pilot testing, such that (a) the individual task goals would be readily attainable by most participants if pursued in isolation, but (b) approximately half of the participants in the moderate goal condition would be able to attain both goals within the available time. Thus, the cumulative load placed on participants was such that many participants might reasonably have perceived that both goals could be attainable, particularly early in goal pursuit, yet still allowed for meaningful within-person fluctuations in these key variables as the deadlines drew near (e.g., coming to believe that attainment of both goals was unlikely, despite initial optimism). The difficult goals were set such that (a) the individual task goals would be difficult but attainable if pursued in isolation, but (b) few would be able to attain both goals within the available time. Thus, the cumulative load of the difficult goals was expected to result in low dual-goal expectancy, even if individuals believed the individual goals to be attainable if they were able to focus solely on a single task without competing demands. As discussed later, the results indicate that these desired characteristics and effects of the goal difficulty manipulations were indeed realized in the current study. Following each trial, participants were given feedback regarding the number of schedules and the number of requisitions completed during that trial, as well as the number completed during the study as a whole up to that point.

Measures

Prior to each trial, participants indicated the subjective expectancy of successfully reaching (a) the assigned goal for the scheduling task, (b) the assigned goal for the requisition task, and (c) the assigned goals for both tasks (dual-goal expectancy) by the end of all five trials, using an 11-point scale (0 = *0% probability* and 10 = *100% probability*). Perceived goal progress was assessed prior to each trial with a 4-item self-report measure, with 2 items assessing progress toward the scheduling task goal, and 2 items assessing requisition task progress. Participants responded to these items on a 7-point Likert scale (-3 = *performance was far worse than the goal,* 0 = *performance was equivalent with the goal,* 3 = *performance exceeded the goal*). For both tasks, the 2 items were highly correlated (r = .86). Therefore, the two requisition task items were averaged to create a measure of requisition task progress, and the two scheduling task items were averaged to create a measure of scheduling task progress. Relative progress was created by taking the difference between the perceived progress for each task (schedule task progress minus requisition

[3] This option was provided so that the task did not artificially force participants to allocate time to a task if they had no interest in doing so. For example, without this option, a participant who completed all schedule tasks for a given trial would have little alternative but to spend their remaining time on the requisition task, even if they had no desire to do so. With this option, participants were free to end a trial at any point, although the vast majority of participants utilized the full time available to them. Controlling or otherwise accounting for this had no bearing on the results or conclusions.

task progress). Thus, positive values indicate greater progress toward the scheduling task goal, negative values indicate greater progress toward the requisition task goal, and 0 indicates equal progress.

Resource allocation was measured with time spent performing each of the two tasks during each trial. Specifically, resource allocation was operationalized as the proportion of time focused on the schedule task during each task trial. Thus, the inverse (1 minus the proportion allocated to scheduling task) indicates the proportion of time allocated to the requisition task. Finally, for each task, per-trial performance was operationalized as the number of correct schedules or requisitions completed in a given trial, whereas cumulative performance was operationalized as the total number of correct schedules or requisitions completed up to and including the specified trial (e.g., total requisitions correctly completed for Trials 1 through t).

Results

Means, standard deviations, and correlations among the study variables are presented in Table 1. Given the repeated nature of this data set, these descriptive statistics were computed separately for each time period and then averaged across trials to derive the Table 1 values. Descriptive information regarding resource allocation and performance across the two conditions over time is presented in Table 2. We urge considerable caution in interpreting Table 2, because patterns of between-person averages conceal the nature of the underlying within-person patterns of interest, even when those between-person averages are broken down by trial, as in Table 2. In particular, Table 2 implies that proportional time allocation is relatively constant across both conditions and trials, with all participants allocating slightly more time toward the requisition task than the scheduling task, regardless of condition or time. However, Figure 2 illustrates how very different dynamic patterns of within-person resource allocation can yield between-person averages that suggest resource allocation is invariant across conditions and time.

For example, Figure 2A conveys two patterns of resource allocation consistent with our models' predictions that participants provided with two moderate goals allocate resources by need (i.e., toward the goal furthest from attainment). For example, during Trial 1, Participant A allocated most of his or her time toward the requisition task.[4] As a result of this Trial 1 time allocation, progress on the requisition task exceeded that of the scheduling task at the beginning of Trial 2, thus resulting in greater time allocated to the scheduling task during this time period. This pattern of shifting time allocation toward the most discrepant task continues throughout much of the remaining time, as long as dual-goal expectancy remains sufficiently high. Participant B began by allocating more time toward the scheduling task in Trial 1, rather than the requisition task like Participant A, thus creating a subsequent pattern of allocation that appears to be the opposite of that for Participant A. Yet, it is important to note that, for both participants, the underlying resource allocation policy was the same—allocating more time toward the task for which the least progress had been made at the time.

Figure 2B conveys two patterns of resource allocation consistent with the model's predictions that those presented with two difficult goals would tend to allocate more resources toward the goal that was closest to being attained. For example, Participant C began by allocating more resources toward the scheduling task. Unlike the prediction for those assigned two moderate goals, those assigned two difficult goals were predicted to maintain their initial task preference throughout all trials, owing to their low dual-goal expectancy. Similarly, Participant D initially allocated to the requisition task and maintained this preference throughout all five trials. Thus, although the resource allocation patterns of these 2 participants appear to be opposites, they reflect the same underlying policy of allocating more resources toward the task for which the greatest progress was being made.

These figures highlight the importance of appropriately matching the methodological and analytic approach to the nature of the phenomena under investigation. In the present context, between-person analyses would likely obscure the resource allocation processes of interest. For example, despite the clear differences in allocation policy of Participants A and B, represented in Figures 2A, compared to that of Participants C and D, represented in Figure 2B, between-person analyses would indicate that no difference in resource allocation exists between the two goal-setting conditions. Thus, to more appropriately evaluate the within-person issues of interest in this study, we utilized hierarchical linear modeling, where observations over time were nested within individuals. Time was included as a control variable in all analyses. The hypotheses proposed earlier are tested in order of the proposed causal flow, along with tests for mediation of causally prior links, where relevant.

Hypothesis 1

Hypothesis 1 proposed that cumulative performance (aggregated across all previous trials) and goal difficulty would interact in their effects on perceived goal progress. As summarized in Table 3, perceived progress was positively related to prior performance on the respective task for both the scheduling task, $\gamma = .21$, $F(1, 206) = 86.94$, $p < .001$, and the requisition task, $\gamma = .20$, $F(1, 206) = 100.18$, $p < .001$. Goal difficulty also had a main effect on perceived progress for both the scheduling, $\gamma = -.36$, $F(1, 206) = 8.37$, $p < .01$, and the requisition tasks, $\gamma = -.46$, $F(1, 206) = 11.80$, $p < .001$, such that perceived progress was lower with the assignment of difficult goals. Moreover, as hypothesized, the effects of prior performance were moderated by goal assignments for both the scheduling task, $\gamma = -.09$, $F(1, 204) = 23.19$, $p < .001$, and the requisition task, $\gamma = -.11$, $F(1, 204) = 53.26$, $p < .001$, such that a given level of performance was weighted more heavily with regard to perceived progress in the moderate, as compared with the difficult, goals condition (Figure 3). Together, these results provide strong support for Hypothesis 1.

[4] The initial choice concerning which task to pursue first is an idiosyncratic preference that our model does not attempt to predict, focusing instead on the subsequent patterns of resource allocation resulting from progress toward the two tasks over time. There was no statistically significant difference in initial task choice, because participants were equally likely to initially allocate toward the scheduling task and the requisition task. Moreover, averaged across all participants and all time periods, the time allocated to the two tasks was statistically equivalent.

Table 1
Descriptive Statistics (Averaged Per-Trial Values)

Variable	1	2	3	4	5	6	7	8	9
1. Difficulty condition	1.00								
2. Perceived scheduling progress	−0.18	1.00							
3. Perceived requisition progress	−0.25	0.30	1.00						
4. Scheduling expectancy	−0.24	0.64	0.23	1.00					
5. Requisition expectancy	−0.32	0.20	0.69	0.42	1.00				
6. Dual-goal expectancy	−0.38	0.48	0.52	0.71	0.67	1.00			
7. Resource allocation	−0.02	0.27	−0.21	0.23	−0.18	0.03	1.00		
8. Scheduling performance	0.10	0.61	0.04	0.40	0.07	0.20	0.50	1.00	
9. Requisition performance	0.08	−0.04	0.58	0.04	0.50	0.22	−0.56	−0.09	1.00
M	0.51	−1.39	−1.04	4.51	5.04	3.49	0.46	2.01	2.05
SD	0.50	1.70	1.86	3.52	3.77	3.33	0.33	1.89	1.91

Note. $N = 70$; correlations larger than |.23| are significant at $p < .05$.

Hypothesis 2

Hypothesis 2 proposed that goal progress would be positively related to task-specific expectancies, with the strength of this relationship increasing over time. For each task, we first examined the simultaneous main effects of goal progress and time before examining the incremental effects of their interaction (Table 4). For the scheduling task, a negative main effect of time was observed, such that the expectancy of attaining the scheduling task goal decreased over time, $\gamma = -.23$, $F(1, 206) = 7.68$, $p < .01$. Additionally, a main effect was observed for goal progress, such that expectancy increased as goal progress increased, $\gamma = 1.14$, $F(1, 206) = 135.69$, $p < .001$. The moderating effects of time on the relationship between scheduling progress and scheduling expectancy did not reach statistical significance with a two-tailed test, $\gamma = .09$, $F(1, 204) = 2.87$, $p = .09$. However, the nature of the effect was as predicted, with the relationship increasing in magnitude as the deadline drew closer, and reached statistical significance when examined with a directional/one-tailed test. A parallel set of results were observed for the requisition task, with a main effect of time, $\gamma = -.19$, $F(1, 206) = 4.37$, $p < .05$, and requisition progress, $\gamma = .91$, $F(1, 206) = 64.55$, $p < .001$, on requisition expectancy. Again, the interaction of requisition progress and time did not reach statistical significance with a two-tailed test, $\gamma = .11$, $F(1, 204) = 3.46$, $p = .07$, although the nature of the relationship was again consistent with our expectations and reached significance with a directional test. Thus, Hypothesis 2 was partially supported, because goal progress was a strong predictor of expectancy, although support for increased strength of the relationship over time was more tentative.

The model suggests that perceived progress serves as a mediator of the effects of goal difficulty and prior performance on task expectancies. Having established the proximal link between goal progress and expectancies, we next examined the distal link from goal difficulty and prior performance to task expectancies. A significant interaction of prior performance and goal difficulty was observed on both scheduling task expectancies, $\gamma = -.11$, $F(1, 206) = 7.46$, $p < .01$, and requisition task expectancies, $\gamma = -.11$, $F(1, 206) = 8.98$, $p < .01$, with the nature of these interactions mirroring those on goal progress, albeit smaller in magnitude. When we controlled for perceived progress on the respective task, these effects were substantially reduced and nonsignificant for both the scheduling task, $\gamma = -.01$, $F(1, 204) = 0.17$, $p = .68$, and the requisition task, $\gamma = -.06$, $F(1, 204) = 2.89$, $p = .09$, providing support for mediation.

Hypothesis 3

Hypothesis 3 postulated that individual task expectancies would positively predict dual-goal expectancy. To test this hypothesis, both scheduling task expectancy and requisition task expectancy were examined simultaneously as predictors of dual-goal expectancy. As summarized in Table 5, each individual task expectancy positively predicted dual-goal expectancy, over and above the

Table 2
Mean Resource Allocation and Performance Across Conditions and Time

	Moderate goals					Difficult goals				
Variable	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
Per-trial scheduling performance	1.50	1.38	2.21	1.76	2.26	2.22	2.00	2.14	2.25	2.33
Per-trial requisition performance	1.71	2.18	1.59	2.09	1.97	1.92	2.17	2.25	2.14	2.50
Cumulative scheduling performance	1.50	2.88	5.09	6.85	9.12	2.22	4.22	6.36	8.61	10.94
Cumulative requisition performance	1.71	3.88	5.47	7.56	9.53	1.92	4.08	6.33	8.63	11.20
Cumulative dual-goal performance	3.21	6.76	10.56	14.41	18.65	4.14	8.31	12.69	17.17	22.14
No. meeting scheduling goal	0	0	4	9	15	0	0	0	0	4
No. meeting requisition goal	0	0	4	13	17	0	0	0	0	8
No. meeting both goals	0	0	2	4	12	0	0	0	0	1
Proportion of time spent on scheduling task	0.46	0.41	0.50	0.43	0.50	0.44	0.44	0.45	0.43	0.49

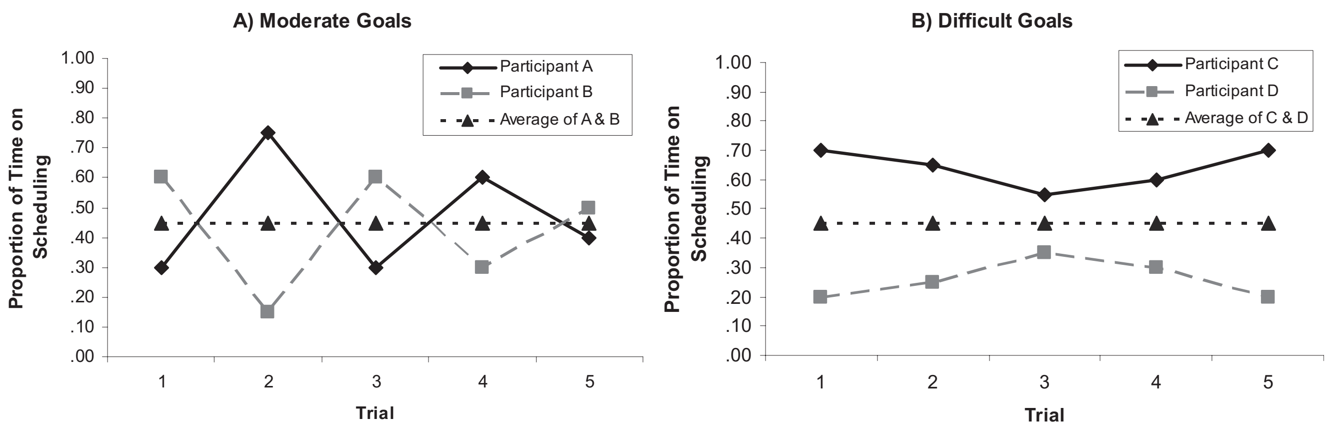

Figure 2. Illustration of differing within-person allocation trends that result in invariant between-person averages.

effects of the other: scheduling expectancy, $\gamma = .47$, $F(1, 276) = 157.76$, $p < .001$; requisition expectancy, $\gamma = .38$, $F(1, 276) = 102.00$, $p < .001$. Moreover, a significant interaction was observed, $\gamma = .06$, $F(1, 275) = 79.46$, $p < .001$, such that higher expectancy for one task had minimal effects on dual-goal expectancy unless is was also accompanied by high expectancy for the other task (Figure 4). Thus, Hypothesis 3 was supported.

We next tested the implied mediation of the proposed antecedents of individual task expectancies. Perceived progress for both the scheduling task, $\gamma = .65$, $F(1, 206) = 34.88$, $p < .001$, and the requisition task, $\gamma = .64$, $F(1, 206) = 32.75$, $p < .001$, was positively related to dual-goal expectancy. Moreover, these effects were substantially reduced after controlling for individual task expectancies, reflecting complete mediation for the scheduling task, $\gamma = .00$, $F(1, 204) = 0.01$, $p = .93$, whereas a modest direct effect remained for the requisition task, $\gamma = .21$, $F(1, 204) = 4.82$, $p < .05$. These results provide overall support for the notion that the effects of discrepancies on dual-goal expectancy are mediated by individual task expectancies. Later, we give direct attention to the more distal antecedent of goal difficulty in the tests associated with Hypothesis 5.

Hypothesis 4

Hypothesis 4 posited that dual-goal expectancy would moderate the relationship between relative progress and resource allocation, with more resources allocated to the goal for which progress was lowest when dual-goal expectancy is high, but toward the goal for which progress was greatest when dual-goal expectancy is low. This was again tested with a hierarchical procedure in which main effects were examined prior to introducing the interaction. As indicated in Table 6, no main effects were observed. Consistent with Hypothesis 4, a significant interaction was observed between dual-goal expectancy and relative progress, $\gamma = -.01$, $F(1, 202) = 15.85$, $p < .001$. The nature of this interaction was as predicted (Figure 5), supporting Hypothesis 4. With high perceived likeli-

Table 3
Cumulative Performance and Goal Difficulty as Predictors of Perceived Goal Progress

Predictor	γ	Num *df*	Den *df*	*F*	*p*	R^2
Scheduling goal progress						
Step 1						
Time	−0.28	1	206	12.00	<.001	.06
Goal assignment condition	−0.36	1	206	8.37	<.01	.04
Scheduling performance	0.21	1	206	86.94	<.001	.30
Requisition performance	−0.01	1	206	0.18	.669	.00
Step 2						
Scheduling Performance × Condition	−0.09	1	204	23.19	<.001	.10
Requisition Performance × Condition	−0.04	1	204	5.89	.016	.03
Requisition goal progress						
Step 1						
Time	−0.26	1	206	11.64	<.001	.05
Goal assignment condition	−0.46	1	206	11.80	<.001	.05
Scheduling performance	−0.02	1	206	1.00	.319	.00
Requisition performance	0.20	1	206	100.18	<.001	.33
Step 2						
Scheduling Performance × Condition	0.00	1	204	0.06	.801	.00
Requisition Performance × Condition	−0.11	1	204	53.26	<.001	.21

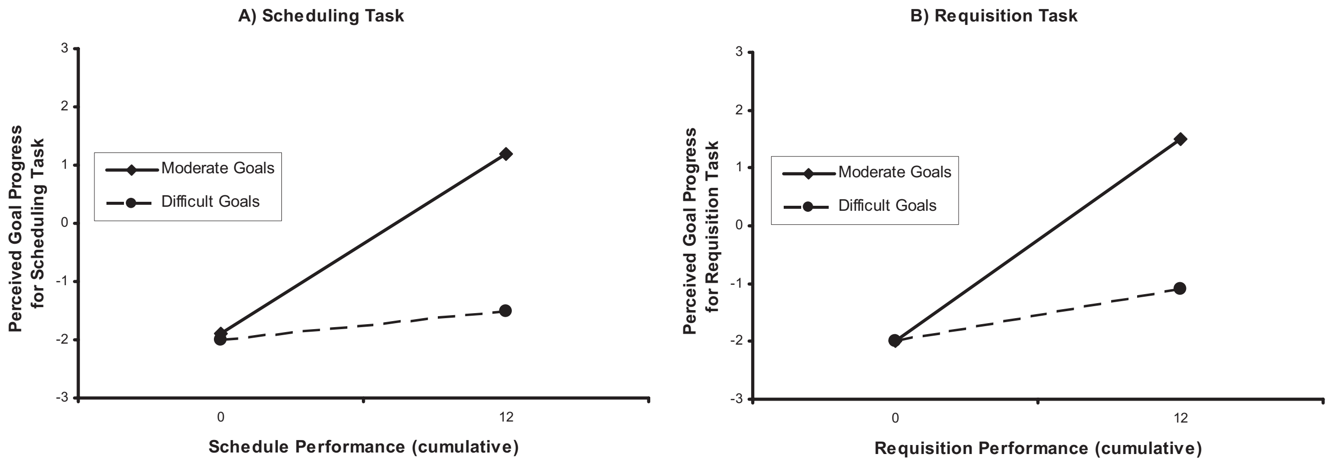

Figure 3. Interaction of cumulative performance and goal difficulty on perceived goal progress.

hood of attaining both goals, increased resources were allocated toward the task for which performance was furthest from the goal. In contrast, when attainment of both goals was seen as unlikely, increased resources were allocated toward the goal that was closest to attainment. Mediation tests for the effects of causally prior constructs on resource allocation are discussed later with Hypothesis 6.

Hypothesis 5

Hypothesis 5 proposed that dual-goal difficulty would moderate the relationship between relative progress and resource allocation, with moderate dual-goal difficulty associated with greater time allocated to the goal furthest from attainment and with high dual-goal difficulty associated with greater time allocated to the goal closest to attainment. The interaction of goal difficulty and relative progress was significant, $\gamma = .05$, $F(1, 204) = 21.99$, $p < .001$, with the nature of this interaction as expected, mirroring that observed for dual-goal expectancy and relative progress. Indeed, differences in dual-goal expectancy across the goal difficulty conditions were expected to be a key driver of the Difficulty $\times$ Relative Progress interaction. To test for this mediating process, we next examined the effects of dual-goal difficulty on dual-goal expectancy. As predicted, dual-goal expectancy was lower given the assignment of two difficult goals, as compared with two moderate goals, $\gamma = -1.36$, $F(1, 276) = 23.75$, $p < .001$. Moreover, goal difficulty moderated the effects of prior scheduling task performance, $\gamma = -.09$, $F(1, 206) = 16.63$, $p < .001$, and prior requisition task performance, $\gamma = -.11$, $F(1, 274) = 29.40$, $p < .001$, on dual-goal expectancy, such that each unit change in prior performance was associated with a larger change in dual-goal expectancy when coupled with moderate goal assignments, as opposed to difficult goals. However, when controlling for the intermediating variables—perceived progress and individual task expectancies—the direct and interactive effects of goal difficulty on dual-goal expectancy were reduced to near zero and became nonsignificant, indicating that the effects of goal difficulty on

Table 4
Perceived Progress as Predictors of Task Expectancies

Predictor	γ	Num *df*	Den *df*	*F*	*p*	R^2
Scheduling task expectancy						
Step 1						
Time	−0.23	1	206	7.68	<.01	.04
Perceived scheduling progress	1.14	1	206	135.69	<.001	.40
Perceived requisition progress	−0.01	1	206	0.02	.893	.00
Step 2						
Scheduling Progress × Time	0.09	1	204	2.87	.091	.01
Requisition Progress × Time	−0.03	1	204	0.31	.578	.00
Requisition task expectancy						
Step 1						
Time	−0.19	1	206	4.37	<.05	.02
Perceived scheduling progress	0.04	1	206	0.15	.702	.00
Perceived requisition progress	0.91	1	206	64.55	<.001	.24
Step 2						
Scheduling Progress × Time	−0.05	1	204	0.61	.434	.00
Requisition Progress × Time	0.11	1	204	3.46	.065	.02

Table 5
Task Expectancies as Predictors of Dual-Goal Expectancy

Predictor	γ	Num *df*	Den *df*	*F*	*p*	R^2
Step 1						
Time	−0.02	1	276	0.13	.718	.00
Scheduling expectancy	0.47	1	276	157.76	<.001	.36
Requisition expectancy	0.38	1	276	102.00	<.001	.27
Step 2						
Scheduling Expectancy × Requisition Expectancy	0.06	1	275	79.46	<.001	.22

dual-goal expectancy are mediated by perceived progress and, in turn, expectancies for successful attainment of the individual tasks. Finally, the interaction of dual-goal expectancy and relative progress was controlled for prior to examining the Difficulty × Progress interaction. This resulted in a reduction in the magnitude of the Difficulty × Progress interaction, though the effect remained significant, $\gamma = .04$, $F(1, 201) = 13.87$, $p < .001$, indicating that the moderating effects of dual-goal difficulty on the relationship between resource allocation and performance are partially mediated by dual-goal expectancy.

Hypothesis 6

Hypothesis 6 argued that time allocation would be positively related to task performance. As summarized in Table 7, results verified that prediction for both the scheduling task, $\gamma = 2.75$, $F(1, 274) = 126.07$, $p < .001$, and the requisition task, $\gamma = -2.46$, $F(1, 274) = 151.90$, $p < .001$, thus supporting Hypothesis 6. The model further suggests that, through resource allocation, the Relative Progress × Dual-Goal Expectancy interaction would influence task performance. Indeed, the direct effect of this interaction on scheduling performance, $\gamma = -.05$, $F(1, 204) = 9.39$, $p < .001$, and requisition performance, $\gamma = .05$, $F(1, 204) = 12.02$, $p < .001$, became substantially reduced and nonsignificant after controlling for resource allocation: scheduling, $\gamma = -.03$, $F(1, 201) = 3.94$, $p = .06$; requisition, $\gamma = .02$, $F(1, 204) = 2.58$, $p = .11$. Thus, Hypothesis 6 was strongly supported, providing a more complete view of the dynamic and reciprocal processes involved in ongoing multiple-goal self-regulation.

Effects of Dual-Goal Difficulty on Performance

Finally, although not specifically hypothesized, we examined the effects of goal difficulty on task performance, both for the individual tasks as well as dual-goal performance aggregated across the two tasks. A hallmark of single-goal research on goal difficulty is that the assignment of difficult specific goals typically leads to higher levels of performance compared with easy or moderate goal assignments. However, as discussed previously, such effects may not be observed when difficult goals are assigned for each goal in competition. Indeed, goal difficulty did not result in significant increases in performance for the scheduling task, $\gamma = .18$, $F(1, 279) = 1.21$, $p = .27$, the requisition task, $\gamma = .14$, $F(1, 278) = 0.52$, $p = .47$, or the combined output of both tasks, $\gamma = .33$, $F(1, 278) = 1.54$, $p = .22$.[5]

However, goal difficulty did impact resource allocation in conjunction with other factors, as detailed earlier. Thus, because of its effects on resource allocation, goal difficulty was expected to have similar interactive effects on individual task performance. Indeed, as illustrated in Figure 6, goal difficulty and relative progress interacted in their effects on per-trial scheduling performance, $\gamma = .21$, $F(1, 206) = 10.44$, $p < .01$, and requisition performance, $\gamma = -.29$, $F(1, 206) = 26.45$, $p < .001$. After controlling for time allocation, the Goal Difficulty × Relative Progress effect on scheduling performance was reduced to near zero and was nonsignificant, $\gamma = .07$, $F(1, 202) = 1.60$, $p = .21$, whereas the effect on requisition performance was substantially reduced but remained significant, $\gamma = -.15$, $F(1, 202) = 9.30$, $p < .01$. Thus, consistent with our model, those assigned two difficult goals allocated more time toward whichever goal was closest to attainment, which in turn resulted in greater performance on that task for the trial in question. In contrast, those assigned two moderate goals allocated more time toward whichever task was furthest from attainment at the time, and thus in greatest need of attention at the time, resulting in greater performance for that task during the respective trial or trials. In total, these results indicate that concurrent assignment of difficult goals influences resource allocation and relative performance across competing demands, thus influencing how individuals balance competing demands, but may not increase the total or aggregate productivity achieved across the complete array of tasks.

Discussion

The current study helps to address a relatively neglected issue in the motivation literature by developing and testing a model of the interplay among goal difficulty, goal progress, and expectancy over time in influencing resource allocation toward competing demands. A central concept in our model is dual-goal expectancy, which represents individuals' beliefs that both goals could be achieved. As predicted, dual-goal expectancy moderated the relationship between relative progress and subsequent time allocation. With high dual-goal expectancy, resources were allocated on the basis of need, with more time devoted to whichever task was most deficient at the time. In contrast, when dual-goal expectancy was low, individuals tended to adopt a more singular focus on whichever goal was closest to being completed, to the neglect of the other goal. Dual-goal expectancy was a function of stable factors, such as goal difficulty, with those assigned two difficult goals being more pessimistic about the prospects of success on both. However, dual-goal expectancy also changed dynamically over

[5] As with all null results, the nonsignificant effects of goal difficulty should be interpreted with caution. However, although a larger sample size could result in such a difference reaching significance, it nonetheless suggests a much smaller effect than typically seen in single-goal contexts.

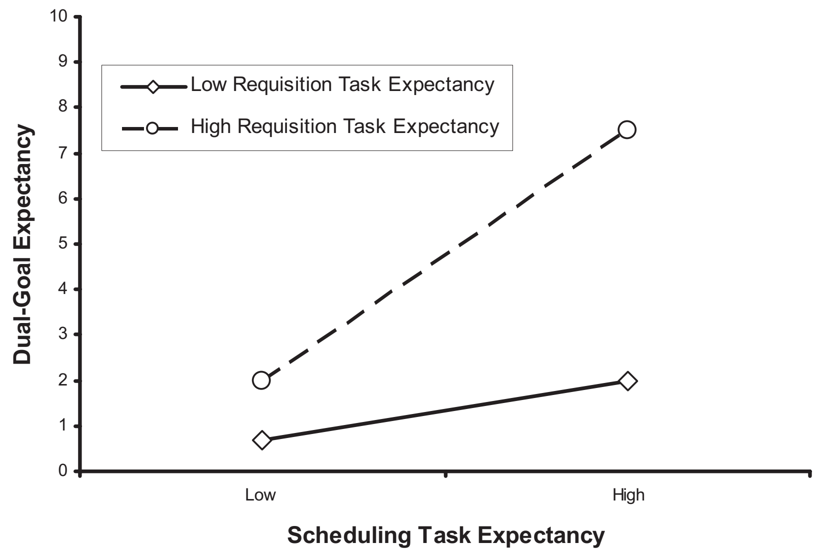

Figure 4. Interaction of scheduling task and requisition task expectancy on dual-goal expectancy.

time as the situation evolved. Thus, changes in dual-goal expectancy can help account for shifts in resource allocation over time.

The concept of dual-goal expectancy may shed light on conflicting results from prior research on multiple-goal self-regulation. Whereas Kernan and Lord (1990) found more time allocated toward the goal closest to attainment, other studies have found precisely the opposite (Schmidt & DeShon, 2007; Vancouver, 1997). Participants in Kernan and Lord's study performed three discrete trials of the dual task, with difficult goals assigned for each task pertaining to per-trial performance, rather than cumulative performance. Given the cumulative difficulty of the two concurrently assigned goals, participants may have doubted their ability to meet both goals during a single trial, leading to a focus on the goal they were most confident could be attained during the upcoming trial. Such a pattern is consistent with the results for the dual-goal difficulty condition in the present study. In contrast, Schmidt and DeShon (2007) utilized goals and performance that were cumulative across trials. Because the deadline was further off in the future, as compared to Kernan and Lord's, participants may have had relatively high dual-task expectancy, particularly early on in goal pursuit, which may have contributed to the general tendency to allocate more time toward the most discrepant goal, particularly early on in the simulation. Indirect support has come from research on the planning fallacy, which found greater optimism about both available time and potential difficulties in implementing plans as the time horizon lengthened (e.g., Buehler, Griffin, & Ross, 1994; Sanna & Schwarz, 2004; Zauberman & Lynch, 2005).

Consideration of dual-goal expectancy may also help shed light on some of the conflicting theoretical propositions between expectancy theory and control theory when it comes to predicting multiple-goal resource allocation. Expectancy theories propose that, all else being equal, individuals prefer courses of action with higher expectancy (e.g., Naylor, Pritchard, & Ilgen, 1980; Van Eerde & Theirry, 1996; Vroom, 1964).[6] Because expectancy tends to be lower when discrepancies are larger (e.g., Bandura, 1991; Carver & Scheier, 1998; Tubbs, Boehne, & Dahl, 1993)—a tendency the current study found to be accentuated as the deadline got closer—expectancy theory implies that resource allocation should be a negative function of goal difficulty and goal-performance discrepancies, with more resources devoted to easier and less discrepant goals for which individuals have greater expectancy of attainment. Yet, as accumulating research is making increasingly clear, resources are sometimes allocated in precisely the opposite manner. In the traditional expectancy theory paradigm, individuals must make a one-shot decision from among a set of options, with no opportunity to subsequently return to bypassed options. From our theoretical viewpoint, we would characterize this as a situation with low dual-goal expectancy, because it presents little or no opportunity to pursue, much less achieve, multiple options concurrently. Our theory proposes that, under such conditions, individuals favor selection of the option most readily attained (likely in conjunction with additional considerations, such as valence), consistent with the implications of expectancy theory. Our results supported the hypothesized preference for the task with smaller discrepancy (and higher expectancy) when individuals had little belief in their ability to achieve both goals. In contrast, control theory and GST traditionally focus on time or effort allocated toward goal pursuit. Existing control theory accounts of multiple-

[6] However, other factors, such as valence, could create a situation in which one might prefer a lower expectancy option. For example, although Goal A may have lower expectancy than Goal B, the valence of Goal A is sufficiently higher than the valence for Goal B that it yields greater utility for Goal A. However, expectancy theories propose that factors like valence affect the amount of increase in motivational force for a given increase in expectancy depends on numerous factors, but in all cases, an increase in expectancy is thought to result in an increase in motivational force. Thus, these theories suggest that, for any given task, the higher the expectancy the greater the motivational force and thus the greater the likelihood it will be pursued, whereas our model proposes that the opposite may sometimes be the case.

Table 6
Relative Progress × Dual-Goal Expectancy as Predictors of Resource Allocation

Predictor	γ	Num *df*	Den *df*	*F*	*p*	R^2
Step 1						
Time	0.02	1	203	1.32	.252	.01
Relative progress	0.02	1	203	2.15	.145	.01
Dual-goal expectancy	0.00	1	203	0.04	.848	.00
Step 2						
Relative Progress × Dual-Goal Expectancy	−0.01	1	202	15.85	<.001	.07

goal self-regulation imply that individuals are actively seeking to pursue each of the goals in competition, rather than simply choosing one goal and abandoning the others outright. Our theory proposes that such a concurrent goal approach is most likely with high dual-goal expectancy. Under such situations, the allocation of resources across time may be more likely to match up with GST and control theory predictions, where resource allocation is proportional to the resource demand. Our results confirmed such a pattern when dual-goal expectancy was high.

Thus, resource allocation may most closely match the implications of expectancy theory when individuals are determining which one—and only one—task to pursue, whereas GST and control theory may be most applicable when individuals are actively pursuing multiple goals concurrently and must determine how to best spread their limited resources across these goals. Because this is the only known study to examine dual-goal expectancy, this account remains somewhat provisional. However, the results of the current study highlight the potential for dual-goal expectancy considerations to alter resource allocation strategies in such a manner as to produce widely divergent results. Thus, the introduction of the construct, along with key causes and consequences, represents an important contribution of the present study.

The current study also contributes to the existing literature on multiple-goal self-regulation by examining the influences of dual-goal difficulty. Assignment of two difficult goals did not significantly increase total productivity across both tasks combined, a finding consistent with other research indicating that the goal conflict created by multiple-goal assignments can undermine performance on one or more of the tasks (Erez et al., 1990; Locke et al., 1994; K. H. Schmidt et al., 1984). The current study further contributes to this literature by identifying key processes through which dual-goal difficulty influences resource allocation and performance when facing such competing demands. Through its effects on goal progress, dual-goal difficulty resulted in lower individual-goal and dual-goal expectancy, because those assigned two difficult goals were more pessimistic about their prospects for goal attainment. In particular, difficult goals tended to reduce dual-goal expectancy, because these participants often felt that attaining both goals was beyond their reach. In part through its effects on dual-goal expectancy, goal difficulty moderated the relationship between relative progress and resource allocation, with those assigned two moderate goals investing more resources toward the goal furthest from attainment and those assigned two difficult goals allocating resources predominately toward the task for which progress was the greatest. This result was expected on the basis of the zero–sum nature of resource allocation in this context. As illustrated in Figure 2, increasing the time allocated to one task in an attempt to improve one's performance on that task comes at the expense of decreased resources to—and, thus, decreased performance on—the other task. Therefore, although goal

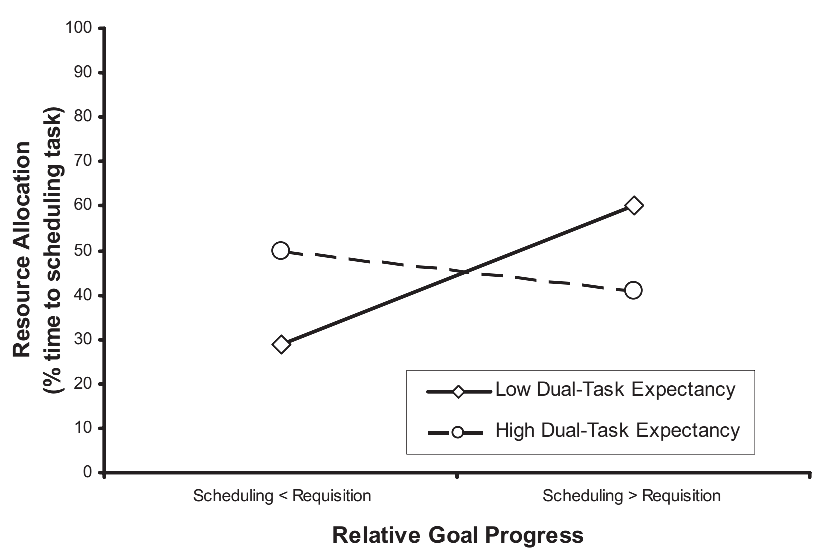

Figure 5. Interaction of relative goal progress and dual-goal expectancy on resource allocation.

Table 7
Resource Allocation as Predictor of Per-Trial Scheduling and Requisition Task Performance

Predictor	γ	Num *df*	Den *df*	*F*	*p*	R^2
			Scheduling task performance			
Time	0.10	1	274	4.90	.028	.02
Resource allocation	2.75	1	274	126.07	<.001	.32
			Requisition task performance			
Time	0.11	1	274	8.95	.003	.03
Resource allocation	−2.46	1	274	151.90	.001	.36

difficulty did not result in an overall increase in total productivity across both tasks combined, it played an instrumental role in resource allocation and relative performance among the two competing tasks.

To some extent, the lack of significantly increased dual-goal performance among those assigned two difficult goals may appear to conflict with existing work on GST. However, GST proposes that goal difficulty effects arise in large part because of the directing function of goals, which help individuals determine where to invest their time and effort. This implies that resources are not only directed toward the focal task, but away from other demands, such that goal assignments may improve performance on one task at the expense of others. Thus, assignment of a single difficult goal may help individuals manage potential resource conflicts by clarifying the intended priority and desired allocation policy (Ashford & Northcraft, 2003). However, multiple difficult goals assigned concurrently provide little assistance in determining the desired allocation policy, but rather increase resource competition and thus increase the trade-offs among the multiple tasks. Additionally, GST proposes that goals that are seen as unfeasible may not be adopted or may be quickly abandoned (Locke & Latham, 1990). The results of the current study extend this proposition to multiple goals, where the attainability of all goals under consideration has important effects on motivational processes.

Although replication and extension are needed to understand the boundaries of this effect, it suggests important practical implications. With organizations seeking to do more with less, employees are often asked to meet continually increasing performance standards for multiple aspects of their jobs simultaneously. At some point, the cumulative demands of multiple difficult goals may exceed individuals' available resources, requiring difficult choices about how to best compromise in the allocation of resources, which may lead to partial (e.g., lowering one's aspirations, doing only the minimum, etc.) or total abandonment of one goal to ensure attainment of the other. That is, if goals are difficult by traditional standards (e.g., 85th percentile, as suggested by Locke & Latham, 1990, 2002) when pursued in isolation, the cumulative demand of multiple goals of such difficulty is likely to make attainment of all goals virtually impossible. Thus, when concurrent performance of multiple tasks is required, traditional definitions of goal difficulty may need to be reconsidered to take into account the full array of demands placed on employees, because increases in performance in one domain may come at the expense of other equally important responsibilities. This may be easier said than done, because difficult goals for one task may be set by a supervisor who is unaware of the other demands currently placed on the subordinate in question. Systems that promote greater communi-

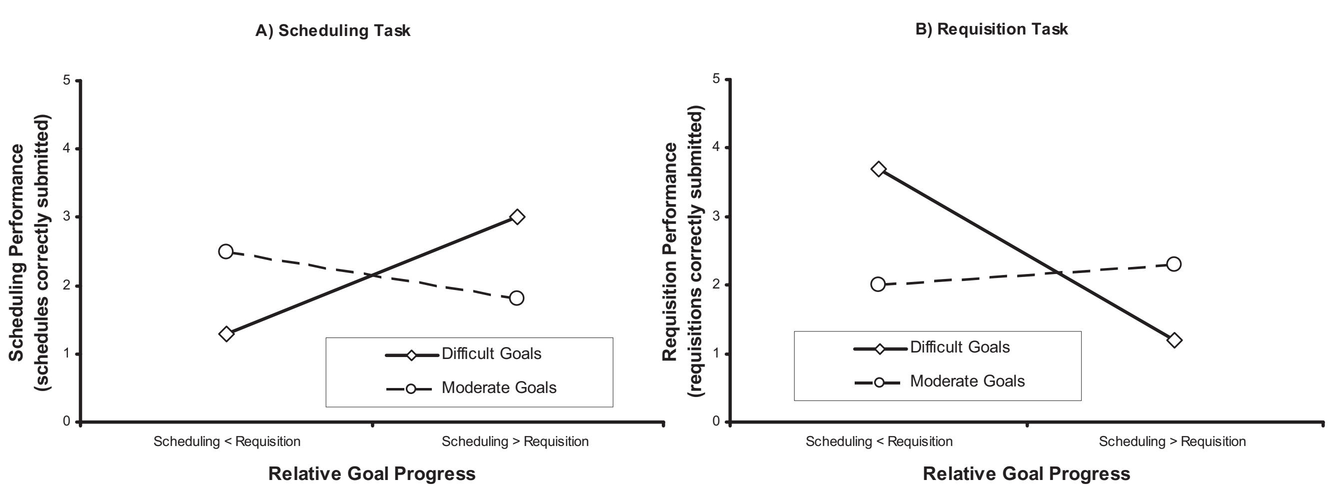

Figure 6. Interactions of dual-goal difficulty and relative progress on per-trial scheduling and requisition task performance.

cation and coordination of goals across the organization may help to avoid such overloading (or underloading) of employees.

Limitations and Directions for Future Research

Like all research, the current study has several notable limitations. In particular, to allow clear inferences about the constructs of interest, numerous factors were held constant across the two tasks. First, goal attainment was not associated with contingent rewards or punishments for either task. Consequences of success or failure correspond to the notion of valence, which may amplify or attenuate the effects of expectancy (Kernan & Lord, 1990; Van Eerde & Thierry, 1996) and goal progress (A. M. Schmidt & DeShon, 2007). Reactions to dual-goal expectancy may likewise differ depending on valence. Second, the time frames and deadlines for goal completion were also held constant. However, differences in deadlines are likely to play an important role in goal prioritization. We suspect that the effects of deadlines on resource allocation are likely to occur, at least in part, through perceived goal progress and expectancies and, thus, might be readily incorporated into the current model, although they may have unique effects all their own. Third, both tasks provided equivalently frequent and specific feedback. However, differences in feedback may also play an important role in time allocation (Ashford & Northcraft, 2003). Fourth, the tasks used in the study were stable, in that the assigned goals did not change throughout the task, and performance was solely a function of the goal seeker's own actions. However, in some situations, the workload can increase (e.g., because of a last minute change of plans by a supervisor or client) or decrease (e.g., through the assistance of a coworker). Such external influences may influence resource allocation strategies, in part by increasing the uncertainty regarding future performance states (e.g., A. M. Schmidt, Dolis, & Tolli, in press).

Finally, the current study did not examine individual-difference characteristics that may influence resource allocation, though many such possibilities exist. For example, A. M. Schmidt et al. (in press) found that individual differences in goal orientation influenced whether goal seekers tended to focus on the most or the least discrepant goal. Individual differences may interact with various characteristics of the competing demands, perhaps influencing the idiosyncratic valence attached to each goal. Additionally, they may influence the extent to which individuals take on the inherent risk of splitting their resources across competing demands in an effort to succeed at each, perhaps even when dual-goal expectancy is low, rather than choosing the safer route of allocating one's resources toward a subset of demands to ensure some successes. Additionally, some individuals may be more comfortable working on multiple demands concurrently, rather than working more sequentially (Bluedorn, Kalliath, Strube, & Martin, 1999; Ishizaka, Marshall, & Conte, 2001), which may impact the processes examined in this study.

Unfortunately, given the dearth of research on concurrent goal pursuits, it is unclear precisely how each of these factors might influence the allocation of time and effort across competing demands, and thus many opportunities for future research are indicated. The sheer number of factors that may bear influence on multiple-goal self-regulation highlights the complexity of the phenomenon. Though this necessarily places limitations on the generalizability of the current results, we feel that the paradigm we used allowed us to gain important insights into the study's key constructs of interest. Although much remains to be learned, the collective body of literature is casting light on the much neglected issue of how individuals manage competing demands. We hope that, as this body of literature expands, many of these unanswered questions will be addressed, ultimately leading to real-world applications that help individuals and organizations make the most of their limited resources.

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