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# A Process Perspective on Adaptive Performance: Research Insights and New Directions

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**Dustin K. Jundt[1] and Mindy K. Shoss[2]**

## Abstract

Given its acceptance and value as an important facet of workplace behavior, research has primarily attempted to understand adaptive performance by way of examining its antecedents. Although useful, these findings provide little insight into the in-situ, intra-individual processes that occur during adaptive performance (i.e., How do people adapt to change? What determines the speed at which people adapt? How do failures to adapt occur?). The current paper develops and presents a process model of adaptation in order to provide a framework for organizing, understanding, and investigating the in-situ process involved when individuals adapt to changes in job demands. In particular, we suggest that in order to successfully adapt to a changing task environment, individuals must go through a series of processes in order to detect the nature of a change, diagnose its cause, develop or refine strategies, learn additional knowledge or skills, and enact appropriate performance behaviors. At the same time, dynamic emotional, cognitive, motivational, and situational factors serve as proximal inputs and outputs of these processes. In doing so, they shape the success and speed with which people adapt and suggest a broadened set of outcomes of adaptive performance. We describe

[1]Saint Louis University, Saint Louis, MO, USA
[2]University of Central Florida, Orlando, FL, USA

**Corresponding Author:**
Dustin K. Jundt, Department of Psychology, Saint Louis University, 3700 Lindell Blvd., Morrissey Hall, Room 2741, St Louis, MO 63108, USA.
Email: dustin.jundt@health.slu.edu

how this model can be leveraged to stimulate dynamic adaptive performance research and to promote adaptive performance in applied settings.

**Keywords**
adaptive expertise or learning, adaptive performance, job performance

## Introduction

Gailliot, Baumeister, and Mead (2008, p. 482) noted: "regulation of the self to fit with the environment is probably the most successful strategy for achieving and maintaining harmony between the self and the world." This sentiment has become particularly salient at work, where the pressures of a globally competitive business environment in concert with the increased rate of technological advances have served to reduce the "shelf-life" of employees' knowledge and skills (Whiting, 2020). The relevance of adaptation is center stage during the current COVID-19 pandemic where workers have had to rapidly, and unexpectedly, adapt to different work environments, job demands, roles, priorities, procedures, and tools (Uitdewilligen, Rico, Thommes, & Waller, 2021). Whether and how quickly people adapt is not only relevant for business success; in some industries (e.g., medicine), the success of employee's adaptation efforts has life or death ramifications.

Individual-level adaptive performance is defined as "task-performance-directed behaviors individuals enact in response to or anticipation of changes relevant to job-related tasks" (Jundt, Shoss, & Huang, 2015, p. S55). Adaptive performance is crucial for employees to maintain successful performance in light of new or altered task demands, which may include not only the tasks themselves but other task-relevant aspects such as methods of accomplishing tasks and changing performance targets. Given the importance of adaptive performance, the literature has understandably sought to uncover predictors of it. This literature has largely relied on variance theorizing (cf. Langley, 1999) and consequently we know much about "what" individual difference, motivational, self-regulatory, training, and contextual factors predict adaptive performance (Jundt et al., 2015; Huang, Shoss, & Jundt, 2018). However, our understanding of "how," "why," and "when" these factors work may be misguided or incomplete without the "know-how" type of knowledge (Langley, Smallman, Tsoukas, & Van de Ven, 2013) generated by an understanding of the in situ processes individuals utilize to adapt. This serves as a major limitation as noted in several recent reviews of the adaptive performance literature, which have called for greater theory to understand the adaptation process and to order to develop a dynamic view of individual-level

adaptive performance (Baard, Rench, & Kozlowski, 2014; Jundt et al., 2015; Park & Park, 2019).

The current paper focuses on developing and presenting an individual-level, in-situ, domain-specific (Baard et al., 2014) process framework that supports thinking about individual-level adaptive performance as a complex and dynamic set of behaviors and cognitions. In doing so, we address calls for theory building about the nature of tasks involved in adaptation; calls to understand how the study of adaptive performance is connected to, but distinct from, its constituent processes such as learning and performance; and calls to more clearly consider processes and relationships that link adaptive performance-relevant antecedents and outcomes (Baard et al., 2014; Jundt et al., 2015; Schmitt & Chan, 2014). This framework can ground future theory building, offer a rich set of new research questions, and stimulate methodological advances.

We first briefly review extant conceptualizations and operationalizations of adaptive performance. Next, draw from theoretical and empirical work on self-regulation (e.g., Diefendorff & Chandler, 2010; Inzlicht, Werner, Briskin, & Roberts, 2020) and the individual-level adaptive performance process (e.g., Chen, Thomas, & Wallace, 2005; Ployhart & Bliese, 2005) to develop a process framework which positions adaptive performance as dynamic, self-regulated performance-directed behavior that involves various component processes that "operate as part of a larger whole" (Lian, Yam, Ferris, & Brown, 2017, p. 705). We then discuss how this framework can be used in future research to understand success and failure in the adaptation process and discuss sets of processes (emotional, cognitive, motivational, and situational) that might drive and derive from these outcomes in a dynamic sense. Finally, we consider how this model can be applied to promote a more dynamic, contextually grounded view of adaptive performance.

## Background

### *Individual Adaptive Performance*

Recognizing the importance of performance in dynamic and uncertain situations, researchers have argued that modifying one's behavior when facing a changing task environment is a requirement of many, if not most, existing and future jobs (Griffin, Neal, & Parker, 2007) and that adaptive performance is a distinct element of performance (Ployhart & Bliese, 2006; Shoss, Witt, & Vera, 2012). In particular, Griffin and Hesketh (2003) argued that change can create a mismatch between an employee's skills and the skills required by the job, as well as between an employee's needs and environmental reinforcers.

Therefore, adaptive behaviors on part of the individual involve changing either one's skills/abilities or the environment itself to improve fit (Chan, 2000). Consistent with this, Griffin et al. (2007) argued that the locus of change distinguishes adaptive performance (the former) from proactive performance (the latter). Jundt et al. (2015) aimed to further clarify adaptive performance by defining it as behavior rather than individual proclivity and noted that it can be enacted both in anticipation of and in response to a change. Additionally, although much of adaptive performance research has focused on skill-based adaptation (e.g., adapting to a change that requires adjusting one's strategies or skills), adaptive performance could also involve adapting one's interpersonal or emotional behaviors depending on the nature of the change.

We focus on adaptive performance as reflecting individuals' attempts to acquire and adjust competencies or strategies to be effective in a changing environment. As such, our model is focused specifically on the individual-level and aligns with a domain-specific process-oriented focus (Baard et al., 2014). Furthermore, it aligns with both previous process-based perspectives on adaptive performance (Chan, 2000) which view individuals as achieving some degree of fit between their behaviors and novel or ill-defined situational demands as well as calls for research (Schmitt & Chan, 2014) to clearly specify processes and relationships linking adaptive performance-relevant criterion and predictor spaces.

Within the individual-level, however, it is also important to note that adaptive performance can occur at various degrees of scale. Much adaptive performance research is focused at the level of individual task change, reflecting a relatively granular context with a constrained set of adaptational demands. However, adapting to new role, learning new tools and technologies, working under a new boss, or needing to do one's job with decreased resources may also be viewed as adaptive performance (Sieck, Pearl, Bright, & Yen, 2020; Uslu, Altınbaş, Özercan, & van Giersbergen, 2019), albeit with larger time and task scales (c.f. Symonds et al., 2021; Marks, 2007). Although we describe and illustrate our model using micro-grain sized examples, it may also be used to understand instances of adaptive performance at larger grain sizes, which may have many processes of micro-grain sized adaptation operating to produce adaptive performance of larger magnitude and breadth.

## *Adaptive Performance as Self-Regulated Behavior*

We view adaptive performance as, like most human behavior (Carver & Scheier, 1998), inherently self-regulated. That is, adaptive performance is conscious, goal-directed behavior. This view is consistent with Chen et al. (2005) and Ployhart and Bliese (2006) who suggest self-regulation is essential

to adaptive performance. Viewing it as such provides "structure" but leaves it open to individual construct theories to elaborate that structure. In this sense, self-regulation serves as "a metatheory … that organizes concepts, objects, or relationships inherent in several local (or specific) theories and places those into an overarching conceptual framework. The development of such theories facilitates interdisciplinary cross-fertilization because at the metatheoretical level, scholars from different disciplines will share a conceptual framework" (Guastello & Liebovitch, 2009, p. 2).

Karoly (1993, p. 25) discusses self-regulation as processes "that enable an individual to guide his/her goal-directed activities over time and across changing circumstances" via modulation of behavior, affect, thought, and attention. This perspective parallels the view of adaptive performance described above, as both focus on activities or behaviors over time across changing circumstances or task demands. Indeed, the idea of engaging in behaviors in order to perform at a certain level or standard is considered to be a ubiquitous and central element of theories of self-regulation (Inzlicht et al., 2020). Furthermore, our notion of adaptation as changing oneself parallels the notion of secondary control (Rothbaum, Weisz, & Snyder, 1982), which captures individuals' efforts to respond successfully to a changing environment (Gailliot, Baumeister, & Mead, 2008).

One perspective on self-regulation that is helpful for thinking about adaptive performance in a dynamic, self-regulated manner is the negative feedback control loop and its depiction of goal striving processes. Starting with the negative feedback loop as a foundation necessitates thinking about adaptation from an "open system" perspective, where the situation or task demands can change, thus rendering previously appropriate plans, strategies, behaviors, or effort insufficient. Indeed, Austin and Vancouver (1996) suggest that adjustment to new task environments is an ideal paradigm for examining the impact of goal striving and self-regulatory cognitions and behaviors.

The negative feedback loop is fundamental to theories of self-regulation (Carver & Scheier, 1998; Diefendorff & Chandler, 2010) and it serves as a starting point for our model. In this type of model, behavior is aimed at reaching a goal or desired end-state. A comparison function is used to determine the discrepancy between one's current level of performance and the goal or desired state. This discrepancy, then, drives action aimed at reducing it. Assuming that one is still committed to the given goal and it is not revised downward to the point of eliminating the discrepancy altogether, plans are developed and behavior consistent with these plans is enacted to reduce the discrepancy. This behavior, along with environmental factors and constraints, results in one's actual level of effectiveness. Subsequently, performance feedback, which can come from a variety of sources, serves as the input that

allows for the next comparison between current state and desired goal or standard to be made, thus re-initiating the cycle.

While the aforementioned cognitions and actions inherent in the negative feedback loop should have valuable implications for understanding adaptive performance, we suggest the basic negative feedback control loop can be supplemented to provide enhanced fidelity in our understanding of the adaptation process. We emphasize that our goal is not to rehash existing models of motivation or derive formal propositions specifically about the nature of control systems related to human behavior. Rather, we seek to use the negative feedback loop as a starting point for generating theory and research questions that we see as particularly valuable for furthering the study of adaptation in the workplace, much in the same way that others have used control theory as a heuristic to develop theory and integrate findings regarding workplace stress (Edwards, 1992), work motivation (Klein, 1989) and human motivation more broadly (Hyland, 1988).

## A Process Framework of Adaptive Performance

Figure 1 presents a heuristic depiction of our proposed process framework of adaptive performance. This model captures three main ideas. First, to successfully adapt to a changing task environment, one must determine the source of relevant task change(s) and appropriate behaviors for adapting to it. We argue that this involves (1) *detecting* that a change in the task environment has occurred, (2) *diagnosing* the nature of the change by gathering relevant information and forming causal attributions, (3) *strategizing* in order to determine what needs to be done to perform well in the new task environment, (4) *learning* requisite declarative knowledge and procedural skills necessary for performance, and (5) leveraging strategies, knowledge, and skill by *performing*.

Second, every stage presents an opportunity for success or failure in the adaptation process that can result in (a) progression across the stages with various degrees of speed, (b) revisiting a previous stage, or (c) exiting the adaptation process altogether (i.e., goal abandonment). Third, these steps, and progression between them are driven by (and result in) dynamic emotional, cognitive, motivational, and contextual self-regulatory components, such as emotions, stress, feedback, appraisals, and past adaptation experiences. These may also be impacted by more distal (and more stable) training, personality, and environmental factors.

Before describing this process, we highlight three fundamental assumptions about our model and its conceptual foundations. First, we assume that the primary job or task performance goal (as described above) is activated for

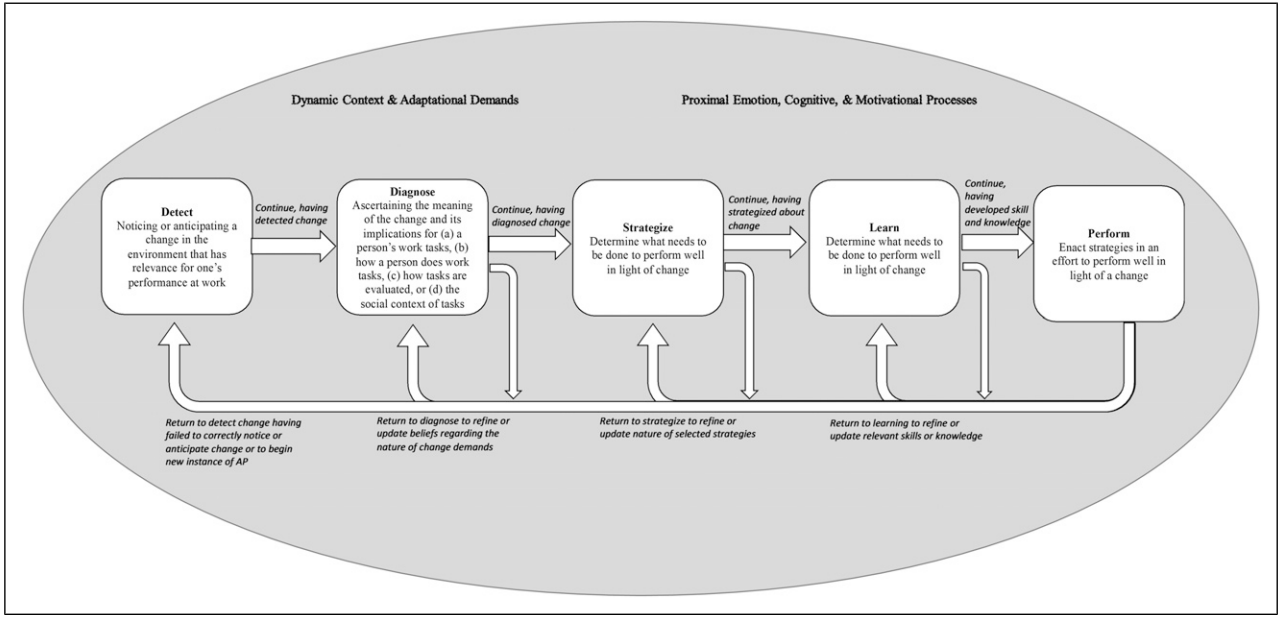


**Figure 1.** A process framework of adaptive performance.

a given individual. Indeed, we expect individuals to value and accept adaptive performance-relevant goals to the extent that they desire to contribute to their jobs, organizations, relevant stakeholders, and so on, or to the extent that they seek to avoid potentially negative personal consequences associated with unsuccessfully doing so. These parallel the reasons individuals would value and accept job performance goals more broadly, and as such, they serve as the "why" (or higher-level goals) that individuals' given performance level goals are instrumental for. Consequently, we are primarily concerned with self-regulatory processes related to *goal striving* rather than goal establishment, revision, or abandonment (Diefendorff & Lord, 2008).

Second, while we introduce the model phases in a linear fashion, we view them as ongoing, iterative, and loosely ordered (e.g., one must detect a discrepancy before attempting to resolve it; Lord, Diefendorff, Schmidt, & Hall, 2010). That is, individuals likely progress through multiple episodes of gathering information, developing and enacting plans, and so forth in the pursuit of adaptive performance; this is especially likely to be the case if multiple changes occurring across the span of a task or job necessitate re-engaging in these processes. Additionally, completion of each single step should be insufficient in its own right for achieving adaptive performance (e.g., detection of a discrepancy does not specify the means for reducing it). Third, our model is derived at the individual-level of analysis and aims to reflect both intra-individual dynamic processes over time as well as how inter-individual factors may play a role in shaping these dynamics.

## *Detecting*

A necessary first step to adapting to a change is recognizing when a change occurs (Marks, 2007; Ployhart & Bliese, 2006). Consistent with self-regulatory models of motivated behavior, a series of goal-performance comparisons should be undertaken in order to understand one's goal progress. In the case of a task change, it would be this comparison process that allows one to identify a failure in his or her current course of action or a potential failure if one is to persist in his or her current course of action once the change occurs. When a discrepancy occurs, people first need to notice the discrepancy exists and determine the nature of its source. If that discrepancy results from a change in the task environment, we assert that people need to be able to recognize the nature (type, severity, etc.) of the change in order to successfully adapt (Dali & Hester, 2022). Therefore, the first stage in the adaptation process is detection of a given change.

In addition to being triggered by current changes, the detection process may be triggered by anticipated changes, whether announced or simply intuited. Humans strive to predict and control our environment (Weiner, 2018) and as a result we often try to anticipate self-relevant future events, in particular potential goal-related threats and opportunities (e.g., Aspinwall & Taylor, 1997). Employees may initiate the search process when changes are anticipated, perhaps as a result of situational-awareness and/or a general tendency towards forward thought. For example, an employee may be aware that similar firms have begun implementing a new accounting software program and anticipate that his/her firm will do the same. Although the search process is largely the same, anticipated changes are likely to involve a greater degree of uncertainty than current changes, especially if they have not yet been announced.

### *Diagnosing*

The second step, diagnosing, can be defined as ascertaining the cause or nature of change in the task environment and its implications for (a) the specific tasks that an employee does, (b) the way that he/she does tasks, (c) how tasks will be evaluated, and (d) the social context in which tasks are done. Diagnosis in this manner is an active, controlled cognitive process, akin to the sensemaking that occurs after workplace-relevant events (e.g., Louis, & Sutton, 1991; Maitlis & Christianson, 2014). That is, individuals need to engage in conscious, effortful processing in order to determine the nature of the change especially as, when elements of a task change, they may not provide high levels of consistency in terms of the stimuli that occur and/or the appropriate responses (Slaughter, Gabriel, Ganster, Vaziri, & MacGowan, 2021). The process of diagnosis should focus on this, with the primary initial goal of developing or acquiring additional declarative knowledge about novel task environment elements, which can then be used to understand the nature of the change.

We believe that individuals will engage in a parallel process of developing causal attributions. Attribution theories suggest that people need some sort of mechanism for understanding why a change occurred so that they can anticipate and prepare for future occurrences (Weiner, 1985, 2018). Likewise, numerous control-theory based models of motivated behavior highlight the importance of the attributional search process for developing causal explanations for actual or anticipated failure to reach one's goals (Carver & Scheier, 1998; Klein, 1989). Further, Louis and Sutton (1991) suggest that cues for change can come from situations that are perceived or experienced as being novel or unusual, unexpected discrepancies or failures, or deliberate

requests calling for new strategies or procedures (see Sieck et al., 2020 for an illustration of this with physician adaptation to using electronic medical records). The attributions that individuals form as a result of this process should serve as a guide and frame of reference for the direction of future learning, strategy development, and performance behaviors.

### *Strategizing*

After recognizing and understanding an actual or potential change, individuals attempt to determine what they need to do to perform well in response. By definition, a person performing on a task with novel elements does not have a working pre-existing strategic contingency associated with the task. Therefore, a potentially successful strategy must somehow be created, discovered, or modified from an existing strategy. Literature related to goals and goal-setting, problem solving, and cognitive decision-making provides some insight into how people use their knowledge and experience to devise and select strategies when task elements change.

For example, Wood and Locke (1990) discuss three different types of plans or strategies that can be used to properly direct effort and action. Stored Universal Plans (SUPs) are those that involve using effort and persistence (e.g., "working hard") and are thought to be nearly universal in their applicability. However, the amount of novelty of a task environment will render these strategies more or less sufficient. Wood & Locke (1990) suggest that individuals also possess a repertoire of more detailed task strategies known as Stored Task Specific Plans (STSPs), which are learned through instruction, modeling, or use on previous tasks and are thought to be more cognitive and skillful than SUP's. However, as task changes likely demand alterations or even reconstruction of STSPs, they provide only a starting point for adaptive performance.

When the performer deems STSPs inapplicable, New Task Specific Plans (NTSPs) must be devised (Wood & Locke, 1990), which often requires substantial effort. Also, as Wood and Locke (1990, p. 81) point out: "people seem loath to abandon STSP's which have served them well for a long period of time," a proclivity which may present significant problems when task demands change. This highlights the importance of engaging in active, conscious planning and strategizing activities in order to successfully adapt to change (see also Cañas, Quesada, Antolí, & Fajardo, 2003).

Similarly, the act of breaking cognitive set (Newell, Shaw, & Simon, 1962) involves abandoning sets of old strategies and existing performance scripts (Zhao et al., 2011) that are no longer successful. Successfully engaging in these types of activities should be critical for the generation of

proper strategies and is thought to be predicated on the level of understanding one has regarding the current task and its similarities and differences when compared to tasks where the individual has previous experience (Cañas et al., 2003; Dane, 2010). The task change paradigm of adaptive performance (and adaptive transfer) has examined the various factors that influence how task-relevant knowledge and skill relate to performance on a given task as well as performance on a slightly changed version of the task (e.g., Bell & Kozlowski, 2008). Upon being presented with the altered task, we suggest that employees have to (a) detect, (b) diagnose, and (c) strategize about how to respond to the change. The research findings using this paradigm (e.g., Bell & Kozlowski, 2008) suggest that knowledge about the task aids in at least one of the processes, although explicit investigations have not occurred.

### *Learning*

Frequently, an employee's strategy may involve gaining additional knowledge and skills to successfully adapt to change (e.g., learning a new task, learning new procedures, learning how to complete tasks with a new technology). Accordingly, learning is often incorporated into definitions of adaptive performance (Shoss et al., 2012) and researchers have argued that the strategizing and learning elements play a key role in distinguishing adaptive performance from other types of performance (Dorsey, Cortina, & Luchman, 2010). Learning may be informal or formal, social or individual. For example, collective learning can serve as a tool for people to adapt to automation at work (Chen & Reay, 2021; Nelson & Irwin, 2014). In contrast, the absence of such opportunities to learn from others, for example, during forced remote work, may have detrimental effects on people's abilities to adapt to change (Becker, Belkin, Tuskey, & Conroy, 2022).

As with the aforementioned steps, learning becomes a sub-goal of adaptive performance and generates a secondary self-regulated process similar to that which we have been describing. That is, once an individual decides that learning is necessary, he/she will go through a process of determining what needs to be learned and how to go about learning, as precursors to the actual learning behaviors (e.g., Bala & Venkatesh, 2016). The feedback loop then entails judgments of learning relative to one's goal. Subsequently, individuals will need to consider how to apply new knowledge via a strategizing process like that discussed above.

For the interested reader, there is a considerable body of literature on training and learning strategies and their effectiveness (Kraiger & Ford, 2021). Consistent with these literatures, we consider declarative knowledge and

procedural skill to be indicators of learning. Of course, what is particularly relevant for adaptive performance is the degree to which this knowledge and skill is appropriate for and aids in successful adaptive performance. We further point out that, whereas we view the other steps as necessary for adaptive performance, there may be certain situations where learning is not (e.g., if only a strategy change is required). Moreover, as Bala and Venkatesh (2016) describe with regard to adaptation to changing IT demands, individuals may decide to engage in learning beyond simply what is necessary to use the new technology. This may not only positively benefit performance, but also help individuals to better understand the consequences of their chosen approaches and reasons for success and failure in past, current, and future attempts to engage in adaptive performance.

### *Performing*

The final stage in this process involves the implementation of the aforementioned newly developed strategies and altered competencies. Implementation of the aforementioned strategies and altered competencies reflects the behavioral output, or performance (Campbell & Wiernik, 2015) of an individual. These goal striving activities (see Diefendorff & Lord, 2008), along with environmental factors and constraints, determine one's actual level of effectiveness. Subsequently, performance feedback, which can come from a variety of sources, serves as the input that allows for the next comparison between current state and desired goal or standard to be made, thus re-initiating the negative feedback cycle (and initiating "backward" progression to earlier steps in the adaptive performance process) if performance is not deemed adequate (i.e., a goal-performance discrepancy still exists).

## Progression Through the Process, Feedback Loops, and Dynamic Inputs/Outputs

Having established the components of the framework, we now turn to process. Our model dictates that the speed and overall level of success or failure in adaptive performance resides in (a) the success of each of the steps of the model (e.g., did an employee accurately perceive a change?) as well as (b) the progression between them (e.g., having correctly perceived a change, did the employee subsequently engage in the process of diagnosing the change?). We also incorporate return loops, recognizing that individuals may need to return to previous steps of the process depending on their success in

subsequent stages or depending on changing contexts. More formally, our model is built on the following:

> **Postulate 1.** Each step in the adaptation process presents an opportunity for success or failure, which in turn influence progression across the stages with various degrees of speed, likelihood of revisiting a previous stage, and ultimate level of performance.

Specifically, individuals may diagnose a change with varying degrees of accuracy or develop and apply strategies with varying degrees of effectiveness. They may pursue each step with varying degrees of effort and persistence, which may influence whether they are able to continue with and successfully complete subsequent steps. The degree of success and the knowledge, skills, or information gathered in one stage may lead people to revisit a previous step in a more successful or refined manner. Similarly, the time it takes to navigate through the stages may influence the extent to which employees successfully adapt, as well as the time it takes for them to do so. Thus, this model suggests speed and level of adaptation as relevant indicators of adaptive performance. Although beyond the scope of the current discussion, we also note that individuals may also disengage from the adaptation process at different steps for a variety of reasons (see Ntoumanis & Sedikides, 2018) and may even revise their performance goals downward or abandonment them completely (cf., Diefendorff & Chandler, 2010).

Our model aligns with research arguing that within-person behavior can be seen as a dynamic system unto itself (e.g., Symonds et al., 2021). We believe that numerous emotional, cognitive, motivational, situational processes serve as proximal self-regulatory inputs and, thus, influence the progression (both "forward" and "backward"—see Figure 1) of individuals through the adaptive performance process. We view these processes as inherently dynamic—they both result from and shape how individuals' progression. They also serve as mechanisms through which more distal person and environment factors can shape adaptive performance, and thus can help integrate static adaptive performance research with the more dynamic approach developed here.

More formally, we offer the following propositions stemming from Postulate 1 above. We elaborate on these propositions in the subsequent sections, which highlight several ways in which these mechanisms may operate as well as candidate predictors.

**Proposition 1.** Proximal emotional, cognitive, and motivational processes influence how successful individuals are in noticing or anticipating a change in their task environment and, subsequently, progressing to diagnosing.

**Proposition 2.** Proximal emotional, cognitive, and motivational processes influence how successful individuals are in diagnosing the nature of change demands and, subsequently, progressing to strategizing or returning to diagnosing.

**Proposition 3.** Proximal emotional, cognitive, and motivational processes influence how successful individuals are in developing or refining appropriate performance strategies and, subsequently, progressing to learning (or performing) or returning to prior steps of the adaptive performance process.

**Proposition 4.** Proximal emotional, cognitive, and motivational processes influence how successful individuals are in updating or refining task-relevant knowledge and skills and, subsequently, progressing to performing or returning to prior steps of the adaptive performance process.

**Proposition 5.** Proximal emotional, cognitive, and motivational processes influence how successful individuals are in implementing performance strategies and, subsequently, successfully performing or returning to prior steps of the adaptive performance process.

After describing how proximal emotional, cognitive, and motivational processes may shape the adaptive performance process, we then turn to how this model can be used to understand the dynamic contexts of adaptive performance as well as adaptation in response to repeated change demands, thereby promoting a more dynamic approach in adaptive performance research.

## *Proximal Emotion Processes*

The detection of a change is likely to induce some initial degree of stress. Edwards (1992) suggested that stress reflects an emotion-laden experience engendered by a discrepancy between perceptions and desires where this discrepancy is considered important (see also Carver, Scheier, & Fulford, 2008). Perceptions and desires can occur with regard to any area of functioning, including job performance. Edwards notes that this discrepancy can be in anticipation of and/or in reaction to a change in perceptions of one's environment, a notion consistent with our view of adaptive performance. Aligning with research on the role of affect in self-regulatory and goal-related processes (Carver & Scheier, 1990), we expect that emotions are both inputs and outcomes of the adaptation process and individuals' progression through it. Indeed, Zaccaro and Banks (2004, p. 371) note

that employees "can often be intimidated or anxious about change, specifically about whether they can perform as well under new conditions," an idea central in the organizational change literature (Marks, 2007; Oreg et al., 2018). The idea that change detection is likely to cause strain is also consistent with theories of stress that suggest some sort of person-environment misfit as a trigger (Edwards, 1992), leading some to define stress as something that requires an "adaptational response" (Jex, 1998).

Consequently, uncertainty resulting from identifying change and the corresponding stress it engenders may influence the extent to which employees move beyond the initial search process as well as how successful their efforts to adapt may be in the long-term (Shoss et al., 2012). Although research has generally focused on more distal individual differences constructs instead of in-situ emotional or affective experiences, several findings do point to stress, emotions, and emotion regulation as helpful in the adaptation process (e.g., Acikgoz & Latham, 2020; Bande & Fernández-Ferrín, 2015; Richels, Day, Jorgensen, & Huck, 2020).

We anticipate that positive affect may enable a wider range of information in the diagnosing stage and generation of more possible strategies in the strategizing stage (Fredrickson & Branigan, 2005). In contrast, negative affect may distract from effort towards goal progress as effort is reallocated towards managing the negative emotion, with negative consequences for goal progress and emotion (Niessen & Jimmieson, 2016; Schraub, Stegmaier, & Sonntag, 2011). Moreover, Carver and Scheier's (1990) work suggests that the rate of progress towards a goal (i.e., velocity) additionally gives rise to affect (positive or negative) over and above basic goal-performance discrepancy levels, which in turn serve to shape success or failure in numerous outcomes related to goal pursuit (Johnson, Howe, & Chang, 2012) including, potentially, adaptation. Progress towards the goal of adaptive performance is likely to be met with frustration or anxiety as efforts to adapt may not have expected results within the expected timeframe (perhaps due to factors related to ability, energy resources, attentional resources, etc.). Alternatively, individuals may experience relief or enthusiasm to the extent to which they are able to progress through the adaptation steps as well as a heightened sense of self-efficacy for adaptation (see below).

### *Proximal Cognitive Processes*

We suggest that feedback, information, and previous knowledge and skill serve as proximal cognitive inputs into, and outputs of, the adaptation process. Feedback is a common feature in numerous models of motivated behavior and

self-regulation, and it may be especially relevant for adaptive performance given suggestions that its effects are most positive when directing attention toward task motivation and learning (see Kluger & DeNisi, 1996). However, the provision and accessibility of feedback is not a given; feedback may be differentially available depending on the type of change, the timing of change, or the different strategies employees pursue to adapt to change. Individuals might also seek different types of feedback (VandeWalle, 2003) depending on factors such as individual differences; in turn, the feedback they receive is likely to impact their success in the adaptation process. As Wofford and Goodwin (1990) noted, feedback, once attended to, can be encoded in terms of goal discrepancies, expectations, and attributions. Feedback directed towards task learning might be relatively more influential in the stages that involve learning (e.g., diagnosis, learning), whereas feedback directed towards task motivation might be relatively more effective in other stages (Kluger & DeNisi, 1996). Given the importance of feedback for driving judgements of current learning and, subsequently, influencing individuals' beliefs of what needs to be learned and how to go about learning (e.g., Bala & Venkatesh, 2016), these dimensions of feedback provision, availability, content, and timing may have substantial influence on how successfully individuals navigate and progress through adaptive performance. This points to the potential importance of feedback "fit," whereby the type of feedback needs to be commensurate with an individual's step in the process in order to positively and maximally affect performance in that step and increase the likelihood of successful adaptation.

In addition, the ability or willingness of individuals to engage in feedback and information seeking behaviors may have important implications for progressing through the adaptation process. The external provision of information may change as individuals attempt to adapt to change, and a lack of information may lead employees to pursue inappropriate strategies or focus their efforts on changes of lesser importance to the effect of missing a larger picture (Shoss et al., 2012). Likewise, change management research finds that the provision of information as well as employees' participation in the change process (which would theoretically increase of information about a change) decreases employees' resistance to change (van Dam, Oreg, & Schyns, 2008). Relatedly, excessive time pressure may result in a rushed process, leading to heuristic processing and overall poorer levels of adaptive performance.

Previous knowledge, skill, and identity logics may also aid in learning about the key elements of a changing task in an adaptive situation. Specifically, Lovett and Schunn (1999) argue that individuals use existing knowledge (in the forms of definitions, information, and contingencies) regarding the task to help define what features of the task are most important or

influential and how new information about the task is attended to, gathered, and organized to build understanding of the task itself. Thus, well-developed existing task knowledge can be used to organize and direct the acquisition of additional information, which can then be used to diagnose the nature of a task change. Similarly, knowledge acquired during the pursuit of adaptive performance, in particular in the learning stage, may lead individuals to revisit earlier stages to refine, update, or correct their diagnoses or planned strategies. This may, in part, help to explain findings in the training domain that active or exploratory learning approaches yield both higher levels of knowledge gain and post-training adaptive performance (Keith & Frese, 2005). Likewise, work on recognition-primed decision making (Klein, 1993) suggests that experts use their knowledge and experience as foundations for consciously assessing a situation to narrow in on information that is potentially useful for understanding the task, problem, or decision at hand. For example, in a study of how outdoor instructors adapted to changing conditions, Mees, Sinfield, Collins, and Collins (2020) identified situational awareness, self-reflection, and meta-cognition as facilitators of adaptive performance by allowing for more rapid identification and understanding of the situation and available options. Of course, if prior experience creates difficulty breaking cognitive set, adaptation may be slowed (Zhao et al., 2011).

### *Proximal Motivational Processes*

Among the range of possible motivational processes, we anticipate expectancies, attributions, goal characteristics, and views of the self and identity to be particularly relevant for the adaptation process. Carver et al. (2008) argue that individuals form a "hazy" sense of confidence or doubt based on memories of similar situations, chronic expectancies, a consideration of additional resources they may bring to bear on the situation, and/or a mental role-play of alternative ways to tackle a problem. If these expectancies result in some degree of confidence, effort toward a given goal is likely to continue. In contrast, doubt may result in full or limited behavioral and cognitive disengagement. Importantly, these expectancies are re-evaluated on a continual basis thus serving as both outcomes and inputs into the adaptation process that may impact persistence or exit. Research examining self-efficacy effects on adaptive performance, which would generally argue that individuals with higher efficacy should exert more effort during attempts to adapt and be more resilient when facing setbacks, supports these assertions (Huang et al., 2018).

As noted earlier, attributional search processes and the subsequent attributions individuals form regarding task changes and unexpected

discrepancies or failures, especially during the diagnosis phase, should influence the direction of future learning, strategy development, and performance behaviors. Given this, we expect that individuals that attribute poor performance after a change to effort deficiencies (internal, unstable, & controllable) rather than task changes (external, stable, & uncontrollable) may focus on increasing effort using an existing strategy rather than on learning about the nature of the newly changed task and, subsequently, making strategic or behavioral changes. This, then, may result in potentially misguided future adaptive performance behavior and, subsequently, necessitate return to the diagnosis stage at a later point.

Characteristics of the goal one is pursuing and, hence, must adapt their strategies and actions toward, may directly shape the adaptive process itself. For example, Howe (2019) argued that performance goals (as compared to learning or do your best goals) would induce pressure to perform, which may engender stress and anxiety (see above) and can inhibit individuals from pursuing more complex strategies for adapting. Consistent with this, Howe found that goal content shaped adaptive performance in conjunction with GMA such that the GMA-adaptive performance relationship was generally positive when individuals were pursuing learning or DYB goals but had little to no effect when individual pursued performance goals.

People may also hold differing motivation for adapting to change depending on the implication of the change for valued features of one's identity and identity functions (e.g., Selenko, Bankins, Shoss, Warburton, & Restubog, 2022). For instance, research on people's reactions to computer algorithms has found that perceptions of algorithms as threats to jobs is associated with a lower willingness to incorporate automation into their tasks (Erebak & Turgut, 2021). This, of course, may change over time as people become more familiarized with changes (i.e., diagnosis) and strategize about ways to maintain or even expand identities as they respond to the change (Nelson & Irwin, 2014). In a similar vein, emerging research on institutional logic and identity work echoes these ideas and suggests that changes that can be understood as consistent with people's prevailing institutional logics will facilitate more rapid adaptation (Malhotra, Zietsma, Morris, & Smets, 2021).

## *Dynamic Context and Adaptational Demands*

Despite a recognition of the importance in understanding peoples' responsiveness to dynamic environments, adaptive performance research has generally taken a static perspective. Laboratory studies predominantly examine adaptive performance after a single narrow change to a cognitive task, while field studies generally solicit self- or other-reports of how well

a person has adapted over set periods of time (e.g., the last 2 months). Each of these approaches has limitations (Huang et al., 2018; Jundt et al., 2015) and leaves open questions regarding how people respond to different types of task changes, how they perform under successive changes, and how people adapt to different orderings or occurrences of change within a given period of time. As a result, little is known about how adaptive performance may differ depending on the nature, timing, and patterning of the changes; whether activities directed at detecting, diagnosing, strategizing, learning, and performing during a given adaptive performance episode influence later adaptive performance; or whether adaptive performance is a skill that can be learned from repeated adaptative experience. The current model, along with application of more longitudinal and temporally sensitive methodologies, can facilitate the investigation of these sorts of questions.

It is likely that the relative importance of each step of the adaptation process and, subsequently, what is needed to adapt to one type of change may be different than what is needed for another (Baard et al., 2014; Jundt et al., 2015; Huang et al., 2018). For example, changes in organizational management may pose particular demands for the diagnosis stage. Adapting to new technologies, for example, electronic medical records in medicine, may require particular effort and attention in learning. Thus, different types of change may create different weights (i.e., importance) of different elements in the process for overall adaptive performance success as well as impact the duration of that each step takes. Addressing these sorts of questions requires a way to conceptualize different types of changes, which remains a challenge for the literature.

Numerous works have addressed this to some degree. Based upon critical incidents, Pulakos et al. (2000) developed eight dimensions that were intended to indicate the behaviors needed for adaptive performance (e.g., dealing with uncertain and unpredictable work situations, learning new work tasks, technologies, and procedures). However, Pulakos et al. (2002) and Huang et al. (2014) found single factor solutions for supervisor adaptive performance ratings, suggesting that raters may have trouble distinguishing between adaptive performance in these domains. Taxonomies of the nature of job-related changes may be applicable, including Ployhart & Bliese's (2006) IADAPT theory and Barnett and Ceci's (2002) learning transfer contexts. The notion of situations requiring adaptation has also been discussed in terms of events that warrant cognitive or behavioral change, such as in Events Systems Theory (Morgeson, Mitchell, & Liu, 2015).

These approaches suggest that circumstances requiring adaptation can vary substantially in both the domain and the degree to which adaptation is needed. The framework above suggests a way to index changes by considering the element(s) of the adaptive performance process in which the changes create the greatest demand. In other words, different change situations have relevance for the relative importance of each step of the adaptation process outlined above and, subsequently, what is needed (i.e., cognitively, emotionally, motivationally, strategically) to exhibit successful adaptive performance. We encourage future research to map adaptational process demands to specific situations.

### *Repeated Adaptive Performance and Learning from Experience*

Adaptive demands may also vary over time in terms of duration, frequency, and the like (Uitdewilligen et al., 2021). This raises important questions regarding how people may respond to adaptational demands in contexts with repeated or ongoing change, which our process framework can help to inform and guide research into. There are many ways that past adaptation experience may shape the adaptation process. For instance, the extent to which one was successful in the past could shape motivation to adapt to subsequent change. Moreover, if a similar situation requires a similar response, adaptation may be facilitated (Blume, Ford, Surface, & Olenick, 2019). However, if adaptation requires a different response, strategizing may be inhibited (Bieleke, Legrand, Mignon, & Gollwitzer, 2018). Dealing with repeated change may be emotionally and cognitively depleting, hindering how much attention and effort individuals are able to allocate to each step in the adaptive performance process, how successful they are in each step, and how well they are able to regulate potentially negative emotional experiences as they attempt to exhibit adaptive performance (Niessen & Jimmeson, 2016). Overall, we anticipate that past adaptation experience will facilitate subsequent adaptive performance to the extent to which the adaptational demands of the situation are similar, individuals were successful in this past experience, and there is sufficient time between changes for individuals to recover from the expenditure of emotional, cognitive, and motivational outputs.

## Implications for Adaptive Performance Research

Our process framework for adaptive performance focuses on in situ, domain-specific adaptive performance processes in order to drive future research and theory building regarding "know-how" knowledge (Langley et al., 2013) and,

thus, facilitate understanding of "how," "why," and "when" various factors may influence adaptive performance success. Leveraging this framework for research, then, suggests a number of inherently dynamic research avenues that are considerably under- (or un-) explored in the extant literature. For example, research examining individuals' progression through these steps (and the antecedents that influence it) during a single episode of adaptive performance demands that researchers clearly delineate and assess outcomes related to each in a temporally appropriate manner.

Additionally, research examining adaptive performance may consider a more dynamic context in which different types of changes may occur. This brings to light questions regarding the (a) how different types of change influence rate or level of progression through the given steps of the adaptive performance process, (b) how well activities during initial episodes shape and influence latter adaptive performance success, and (c) whether individuals can "learn" to be more adaptive over time.

Additionally, the framework yields several implications for advancing research methodology in the adaptive performance literature. First, it demands quantitative and qualitative adaptive performance research that is dynamic and considers the specific adaptational demands to which the person is responding. This is important for both between-person adaptive performance research as well as within-person adaptive performance research, and paradigms that incorporate both will be able to separate sources of these dynamics over time.

Second, it suggests a widened set of adaptive performance criteria. Lang and Bliese (2009), for example, built from a growth modeling perspective to suggest that transition acquisition (performance drop post-change) and re-acquisition acquisition (slope of performance after change) were conceptually distinct elements of intra-individual adaptive performance over time, with correspondingly different predictors. Our model suggests that ultimate level of adaptive performance after a given point in time should also be considered as a relevant outcome. Issues of both speed and level of adaptive performance after a change can speak to the successes of adaptational efforts. Additionally, lab and field approaches to adaptive performance should be expanded to explicitly examine intra-individual and inter-individual variability how people adapt to multiple changes rather than averaging performance across changes (Howe, 2019). The process framework developed in this paper also suggests a broadened set of outcomes of adaptive performance beyond performance. For example, dynamic emotional, cognitive, and motivational variables could be examined as outcomes of the adaptive performance process.

Third, dynamic examinations of adaptive performance, whether dealing with one change or successive changes, would benefit from assessing constituent processes (e.g., strategizing) as well as examining trajectories and

change in proximal emotion, cognitive, and motivational inputs over time. New developments in research methodology, such as multimodal measurement, will be needed to capture changes and employees' responses as they dynamically unfold.

Additionally, applying this model to dynamic individual-level adaptive performance research demands precision in theory, measurement, and analysis with regard to level of granularity or scale. As noted earlier, even though we describe and illustrate our model primary using micro-grain sized examples that likely unfold over the course of hours or days, we believe the model can also be used to understand instances of individual adaptation at larger degrees of magnitude and breadth that unfold over longer time scales (e.g., adaptive performance in response to a new role, moving to a new organization, etc.). We would expect the scale to have substantial implications for "when" and over which timescale the steps and processes identified above would unfold (and, thus, "when" they should be measured—Dormann & Griffin, 2015).

Finally, while we focus on the individual level, this work may be of potential relevance to future work in team- and organizational-level adaptation, as both have noted individual adaptation as a precursor to subsequent higher-level adaptation. For instance, Burke, Stagl, Salas, Pierce, and Kendall (2006, p. 1192) discussed team adaptive performance as "a multilevel phenomenon that emanates as team members and teams recursively display behavioral processes and draw on and update emergent cognitive states to engage in change." Similarly, Kozlowski and colleagues (e.g., Kozlowski, Watola, Jensen, Kim, & Botero, 2009) argued that role-specific team member knowledge and skill development set the groundwork for the development of team adaptive capabilities. Although emergent, multilevel perspectives on team adaptive performance are echoed frequently, research on bottom-up influences of individuals on team adaptation is currently restricted primarily to member traits and individual difference characteristics (Christian, Christian, Pearsall, & Long, 2017; Maynard, Kennedy, & Sommer, 2015). As such, it aligns more with the domain-general individual difference focus to adaptive performance, thus echoing the importance of a process perspective at the individual level (cf., Baard et al., 2014). Similar perspectives exist at the organizational level. For example, Sarta, Durand, and Vergne (2021, p. 46) describe adaptation as "intentional, that is, rooted in organizational members' awareness of their environment, resulting in a choice to react to, anticipate, or ignore changes in the environment."

## Implications for Practice

The stakes of individual-level adaptive performance are high for individuals, organizations, and other stakeholders (e.g., patients in a medicine context). Adaptive performance can be viewed as a component of job performance more broadly, which serves as the building block for performance and outcomes for units, organizations, economic sectors, and beyond (Campbell & Wiernik, 2015). Our process framework presents a way for organizational management to diagnose adaptive situations and support employee adaptive performance. Prior to implementing a major change, organizations might consider the demands of the change on different parts of the adaptive performance process. Then, organizations can develop interventions to help facilitate successful and timely adaptive performance. For example, physicians in a study on adaptation to electronic medical records spoke about the need for the organization to provide a "heads up" about the changes that are occurring (detection and diagnosis support) and clear direction about "how you navigate this" (strategizing and learning support) (Sieck et al., 2020, p. 4). Managers may also use this framework to help an employee who is struggling in either level and/or speed of adaptation by identifying the particular steps of adaptation that are most challenging for the employee and providing support.

## Conclusion

In summary, our model suggests that adaptive performance relies on several, loosely ordered processes: detecting change, diagnosing change, strategizing, learning, and performing. People's success in adaptation is determined by their success in each of these processes as well as the speed with which they can move through these different processes, which may be tied to cognition, emotion, and motivation. Moreover, different changes place particular demands on different parts of the process. This framework provides a generative agenda for adaptive performance theory and empirical research.

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## ORCID iDs

Dustin K. Jundt https://orcid.org/0000-0002-3056-2034
Mindy K. Shoss https://orcid.org/0000-0001-5354-208X

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## Author Biographies

**Dr. Dustin Jundt** is an Associate Professor of Psychology at St. Louis University. He earned a B.S. in Psychology in 2002 from North Dakota State University and an M.A. (2005) and Ph.D. (2009) in Industrial/Organizational Psychology from Michigan State University. His research interests include dynamic aspects of self-regulation during goal pursuit along with individual and team adaptive performance. His work has been published in a number of peer-reviewed journals including Academy of Management Journal, Annual Review of Psychology, Applied Psychology: An International Review, Human Resource Management Review, Journal of Applied Social Psychology, Journal of Management, Journal of Organizational Behavior, Organizational Behavior and Human Decision Processes, and Stress and Health. His research has been funded by the Army Research Institute, the Society for Human Resource Management Foundation, and the Thoracic Surgery Foundation for Research and Education.

**Dr. Mindy K. Shoss** is a Professor of Psychology at the University of Central Florida. She earned a bachelor's degree in Psychology with a secondary major in Economics and a minor in Applied Statistics and Computation from Washington University in St. Louis, followed by a master's and doctorate degrees in Industrial-Organizational Psychology from the University of Houston. Her work in adaptive performance, job insecurity, counterproductive work behavior, and workplace stress has resulted in more than 90 articles and chapters. Her research has been published in journals such as Journal of Applied Psychology, Journal of Management, Journal of Occupational Health Psychology, and Journal of Organizational Behavior, and has received funding from Army Research Institute, National Institute for Occupational Safety and Health, and National Science Foundation, among others. Dr. Shoss is a Fellow of the Society for Industrial and Organizational Psychology.

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**6. AUTHOR(S)**

Jundt, Dustin K.; Shoss, Mindy K.

**7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)**

Saint Louis University
Department of Psychology
3700 Lindell Blvd., Morrissey Hall
St Louis, MO 63108

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**14. ABSTRACT**

Given its acceptance and value as an important facet of workplace behavior, research has primarily attempted to understand adaptive performance by way of examining its antecedents. Although useful, these findings provide little insight into the in-situ, intra-individual processes that occur during adaptive performance (i.e., How do people adapt to change? What determines the speed at which people adapt? How do failures to adapt occur?). The current paper develops and presents a process model of adaptation in order to provide a framework for organizing, understanding, and investigating the in-situ process involved when individuals adapt to changes in job demands. In particular, we suggest that in order to successfully adapt to a changing task environment, individuals must go through a series of processes in order to detect the nature of a change, diagnose its cause, develop or refine strategies, learn additional knowledge or skills, and enact appropriate performance behaviors. At the same time, dynamic emotional, cognitive, motivational, and situational factors serve as proximal inputs and outputs of these processes. In doing so, they shape the success and speed with which people adapt and suggest a broadened set of outcomes of adaptive performance. We describe how this model can be leveraged to stimulate dynamic adaptive performance research and to promote adaptive performance in applied settings

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