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A dynamic model of training transfer

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A B S T R A C T

We expand our understanding of the training transfer process by developing the Dynamic Transfer Model (DTM). We develop and examine linkages between intentions to transfer, the initial attempts to utilize training, and the integration of feedback received from the transfer attempt. We propose that this process repeats itself over time in subsequent transfer attempts to impact work behavior and performance. Implications for transfer criteria, the dynamic interaction between the trainee and context, and the personalization of transfer are discussed. Based on the DTM, we suggest future research directions that can enrich our understanding of transfer as well as derive practical implications for improving training effectiveness.

1. Introduction

The purpose of workplace training is to enhance effectiveness on the job. Learning and its resultant capabilities can have an impact on work behavior and effectiveness if applied and maintained in the work context. Training transfer includes the maintenance, use, and generalization of learned knowledge, skills, and attitudes to facilitate effective performance (Baldwin & Ford, 1988). Researchers have noted that there are often high levels of variance in the extent to which individuals apply the knowledge and skills gained in training to the job (Baldwin, Ford, & Blume, 2009; Burke & Hutchins, 2007; Sitzmann & Weinhardt, 2017a). Therefore, researchers have attempted to develop models of training transfer and have conducted studies to determine the factors that impact transfer of training outcomes.

Baldwin and Ford (1988) presented one of the first systematic reviews of transfer research in relation to what we know about the impact of learner characteristics, training design characteristics, and work environment factors on learning and transfer. The model suggests the need to take an interactionist approach to understanding transfer by noting the need to focus on individual and situational factors. Baldwin and Ford (1988) also presented a set of "maintenance" curves that depicted the changes that can occur in the behaviors (or skills) exhibited in the transfer setting as a function of time elapsed from completion of the training program. For example, one curve presented the situation where initial attempts at trying out new skills on the job led to a quick decrease pointing to a reversal to the old ways of doing things on the job. Another curve demonstrated a situation in which the skill level actually increased over time once back on the job as the individual found additional opportunities to apply trained skills across settings and people. The maintenance curves highlighted the importance of examining changes in transfer behaviors over time and conducting research to understand why the trajectories might differ across trainees.

Since that initial review, there have been a large number of empirical studies on factors impacting transfer as well as a host of models developed to highlight factors that are relevant when attempting to understand training transfer (e.g., Burke & Hutchins,

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2007; Cheng & Hampson, 2008; Grossman & Salas, 2011). Most of the research has been cross-sectional and has examined how individual and situation variables explain variance in transfer criteria (e.g., work behaviors, related outcomes). The research efforts have also been limited by a focus on short-term transfer outcomes typically measured at one point in time with minimal focus on criterion development (Blume, Ford, Baldwin, & Huang, 2010), although a few studies have included multiple measurements (e.g., Axtell, Maitlis, & Yearta, 1997; Dierdorff & Surface, 2008).

We believe transfer research will progress by better understanding transfer as a dynamic process that unfolds over time (e.g., Baldwin et al., 2009; Sitzmann & Weinhardt, 2017a), including how the criteria of interest change or evolve over time. In our view, transfer is an evolving phenomenon resulting from the iterative interplay of persons, situations and criteria over time. Therefore, a transfer model is needed that embraces the view that our ultimate goal is about "understanding the process of how persons simultaneously shape and are shaped by situations" that unfold over time (p. 538; Hattrup & Jackson, 1996).

The purpose of this paper, then, is to expand our understanding of transfer by developing a dynamic, iterative model of transfer over time from an interactionist perspective. The focus of such a model is the examination of the links from intentions to transfer at the end of training, to initial attempts in using the training, and then to the continuation of training transfer over time that impacts work behavior and performance (i.e., evaluation of those behaviors within the context of work objectives and outcomes). We first introduce and describe a transfer model that emphasizes transfer as a dynamic process. Then we discuss the key elements that underlie the model. Based on this dynamic model of training transfer, we offer future research directions that can enrich our understanding of transfer and practical implications of this model.

2. Dynamic transfer model

In Fig. 1, we propose a *Dynamic Transfer Model* (DTM). The first box in the figure is a basic representation of the training process, including the post-training KSAs of trainees that may influence work behavior. The subsequent two boxes in this model operationalize the transfer process from a dynamic interactionist perspective and identify linkages in this transfer process. These linkages include three key phases of the transfer process: (1) post-training KSAs that the trainee intends to transfer; (2) the initial transfer attempt, and (3) the evaluation and integration of feedback from initial transfer attempt. The process then repeats, with the trainee subsequently developing or revising intentions to transfer after the initial transfer attempt. This cycle of application and subsequent outcomes continues throughout the transfer process. The model highlights the impact and importance of the early experiences (and choices) on the transfer process and outcomes, the adaptation of transfer outcomes, and the reciprocal interaction of various person, situation, and criterion constructs on transfer as it unfolds over time.

In Fig. 1, the office building represents the constant as well as the shifting influences of relevant contextual factors that have been shown to influence transfer (e.g., transfer climate, supervisor support; Burke & Hutchins, 2007). We also incorporate a person (i.e., trainee) to represent the constant as well as the shifting influence of relevant individual differences and the trainee's self-regulatory process on the transfer process. These include numerous characteristics such as self-efficacy, Big Five personality traits, cognitive ability, and experience that have been identified to influence transfer in past research (Blume et al., 2010).

One implication of this perspective is that each transfer opportunity presents a set of contextual factors within which individuals are constrained, but have varying degrees of latitude for their individual characteristics to operate, depending on the strength of the situation (Mischel, 1979). Context can activate relevant traits and states in individuals (Tett & Burnett, 2003), constrain individual differences, or change the nature and direction of relationships between individual differences and criteria (Johns, 2006). Another implication is that transfer, like any work behavior, can only be understood fully by acknowledging and investigating the interplay of individual characteristics, situational characteristics, and criterion responses related to relevant work tasks and activities.

The double-headed, vertical arrows in our model from both the buildings and persons indicate that the person-situation interaction that occurs with transfer criteria can be reciprocal as the transfer process unfolds. Individual characteristics, situation characteristics and criteria shape and are shaped by how the transfer process unfolds over time. Tett and Burnett (2003) suggest that trait activation is the process whereby individuals express their relevant personality traits when presented with trait-relevant situational cues. The sources of the situational cues may originate from the task or nature of the work itself, the social context such as the expectations of peers or supervisors, the physical context of the work, or the organizational climate. Following their perspective, we believe knowledge, skills, and attitudes (KSAs[1]) and other individual differences, when salient and relevant to the work task or activity, are activated by situational cues (e.g., see Mischel, 1979). If the situational cues related to the activation of the relevant KSAs and individual characteristics are not salient, the individual may not attempt to transfer the new KSAs as he might not recognize the work activity as an opportunity to apply the new KSAs.

Our DTM provides an explicit treatment of the transfer criterion and of the feedback process which influences individual transfer behavior. As transfer focuses on applying learned KSAs to perform in the work environment, work performance and its measurement are central to understanding transfer. Although performance has a central role in transfer, most empirical research and models pay little attention to the performance criteria (Austin & Villanova, 1992) used to demonstrate whether or not learning has transferred. The DTM addresses the criterion space by differentiating work behavior (i.e., performance), effectiveness of work behavior (i.e., outcomes of performance) and the evaluation of work behavior and/or outcomes (e.g., performance appraisal).

[1] We use KSA throughout the manuscript to refer to knowledge, skills, and attitudes, which can be learned in training and that underlie successful transfer. These are consistent with the learning outcomes (i.e., cognitive/knowledge, skill-based, and affective/attitudinal outcomes) proposed by Kraiger et al. (1993) and are not to be confused with the use of KSAO or KSA where the 'A' stands for ability.

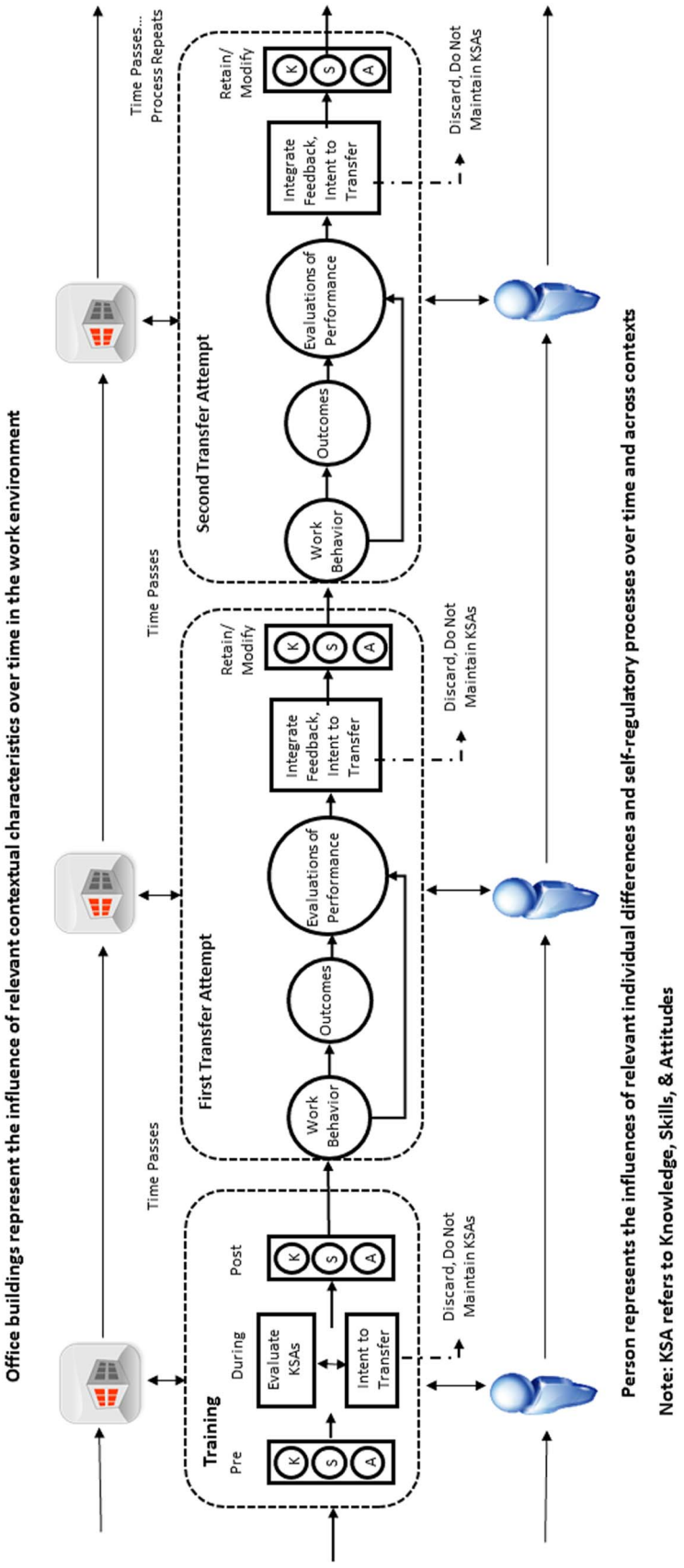

Fig. 1. Dynamic transfer model.

Fig. 1 presents the criterion and feedback process from work behavior to outcomes to evaluation of performance (and/or effectiveness) to the integration of feedback regarding subsequent transfer decisions. Our depiction of performance as work behavior aligns with the view in psychology that performance is behavior, not the product or the outcomes of that behavior (e.g., Campbell, McCloy, Oppler, & Sager, 1993). Outcomes, such as sales results for an individual, may be impacted by other factors, such as economic conditions, beyond the control of the individual and the influence of their performance, and they may fail to provide important information on key aspects of sales performance (e.g., lead generation or product demonstration) that are fundamental to accomplishing the task (Campbell et al., 1993). The DTM includes outcomes as they are often part of the basis of evaluating work behavior as job performance in organizations. The achievement of outcomes (or lack thereof) would be expected to inform judgements of performance and effectiveness by the trainee and others. Other factors outside the control of the trainee may also influence judgments of performance. Therefore, the feedback resulting from the evaluation of work behavior and outcomes can have varying degrees of usefulness to the trainee in influencing the subsequent transfer decisions and actions of the individual.

The DTM also highlights the iterative cycle of events that lead to patterns of use and effectiveness over time. The cycle includes intentions to transfer immediately following training, the initial attempts to transfer new knowledge/skills once back on the job, the evaluation of the outcomes arising from the transfer performance, and the integration of feedback to inform future decisions and actions. Based on feedback from others and the trainee's own evaluation of the initial transfer performance and effectiveness, two possible trainee decisions or paths are proposed. The trainee could integrate the feedback in order to retain or modify the KSAs in preparation for future transfer opportunities or the trainee could choose to dismiss and discard some or all of the KSAs obtained in training. This cycle of attempts to apply or use some aspect of what was trained during transfer performance and evaluation repeats, leads to increases or decreases in attempts to apply training to the job, as well as modifications to what has been trained that can impact work behavior and job performance. Although the above focuses on trainee decisions after feedback and self-evaluation of performance and effectiveness, the results of the transfer attempt could impact the work context and criteria, such as changing the standard of performance for the task.

The model also illustrates key linkages over time including factors impacting the immediate post-training intentions, the events occurring during the initial transfer opportunity, and ultimately the impact on behaviors and outcomes assessed at some later point in time. We discuss these linkages below, which point to important conceptual frameworks and constructs that can help us understand the impact on the transfer process at different points over time.

2.1. From intentions to transfer to initial attempts of transfer

Fig. 1 illustrates that the trainee evaluates the newly developed KSAs in order to form intentions to transfer. Cheng and Hampson (2008) suggest that the theory of planned behavior may be able to help explain the transfer process by focusing on transfer intentions. The theory of planned behavior seeks to explain human action by examining the links between intentions (and their antecedents) and behavior (Ajzen, 1991, 2001; Fishbein & Ajzen, 1975). In particular, perceptions of what will be useful or beneficial to transfer to their job will affect transfer intentions.

Baldwin and Magjuka (1991) were some of the first researchers to study intentions to transfer. They asked trainees at the end of training to evaluate the likelihood that they would use the training on the job. Yelon, Sheppard, Sleight, and Ford (2004) developed a model of decision making processes leading to the intention to transfer. The key decision criteria for the trainees were (1) how credible the information was; (2) how practical the skills were; and (3) to what extent was the knowledge or skill needed. In their study, trainees actively customized or personalized the training – intending to transfer only parts of what was trained and developing their own strategies for how to apply the new knowledge and skills.

Intentions can become goals or internally represented states of being that individual's desire to obtain (Lord, Diefendorff, Schmidt, & Hall, 2010). Individuals hold many goals which are connected in a hierarchical network with short term goals located at a lower level and increasingly longer-term goals being higher up in the hierarchy. Following training, individuals likely form short-term training-related goals that are a function of their higher-level goals, such as their career goals, and whether the training in question will assist them in reaching those higher goals. If the training is easily connected to a high-level goal, the trainee is likely to have higher intentions to transfer training. This result is expected because trainees tend to be motivated to engage in activities which they see as advancing their goals (Sitzmann & Weinhardt, 2017a; Vroom, 1964). Theories of self-regulation state that individuals engage in task-level goals which serve the function of accomplishing their higher-level goals (Vancouver & Day, 2005). Even regulation-based career development theory mentions that individuals choose to engage in some developmental activities in order to reach their career goals (e.g. Lent, Brown, & Hackett, 1994).

However, good intentions do not always lead to action or application. Gollwitzer (1999) discusses the struggle people often have in translating their short-term goals into action by failing to get started on a new course of action, becoming distracted from goal action, or falling back into pre-training habits. This has been called the intention to behavior gap. He notes that the correlation between intentions and behavior is modest at best and can vary widely across individuals and situations.

Transfer researchers have discussed the importance of trainees having the opportunity to perform newly trained skills soon after returning to the job (Burke & Hutchins, 2007; Ford, QuiÑones, Sego, & Sorra, 1992). Ford et al. (1992) identify three dimensions relevant to the opportunity to perform, including the breadth (i.e., number of trained tasks that the trainee actually performs on the job), activity level (i.e., number of times the trainee performs trained tasks), and the type of task performed (i.e., simple vs. complex trained tasks). It is worth noting that training typically has a number of objectives which attempt to impart a variety of knowledge and skills. Thus, the first transfer opportunity will be relevant to one of the objectives trained but not necessarily others. Over time, it is likely that opportunities will differ along these dimensions by trainee depending on these initial experiences.

The nature of the trained KSAs, the relevance of trained KSAs to available work activities, contextual factors, situational strength of those factors, and how proactive a trainee is in seeking out situations are among the factors that would likely influence the initial transfer interval (i.e., how much time is likely to pass between the end of training and the first transfer opportunity). For example, some trainees would be expected (or even mandated) to incorporate their training immediately following training (e.g., new computer software training), whereas other trainees would have more leeway on whether to implement their training (e.g., leadership development training) (Yelon & Ford, 1999). As more time passes, KSAs may decay (e.g., Arthur, Bennett, Stanush, & McNelly, 1998; Ellington, Surface, Blume, & Wilson, 2015) and intentions or motivation to transfer may decrease as well if there is a lack of opportunity to apply the new KSAs.

2.2. From initial transfer attempts to evaluation

When trainees have the opportunity and make an initial attempt to apply training to a work situation, they enact the behavior which they hope will lead to some expected outcome (e.g., applying a certain protocol to drive making a sale) in their work context. Trainees evaluate and use feedback about the experience (was the protocol useful) to determine their subsequent actions when faced with similar opportunities. This self-regulation process (Bandura, 1991; Karoly, 1993; Vancouver & Day, 2005) plays an important role in how trainees guide their goal directed activities over multiple opportunities and across changing situations.

For each goal, a self-regulatory system exists to monitor progress toward that goal through a negative feedback system (Bandura, 1991; Carver & Scheier, 1998; Powers, 1973; Vancouver, 2006). In these systems, progress toward the goal is monitored by comparing one's present state with the desired goal state, deciding if some action has to be taken to reduce any discrepancy in those states, and then some action is taken to reduce that discrepancy. Bell and Kozlowski (2008, 2009) have utilized self-regulation mechanisms to focus on the learning context and interventions designed to enhance performance in the immediate post-training environment.

We extend this perspective to explicate how trainees move through their attempts at transfer over time in context. For example, trainees may encounter a “disturbance” which would activate the regulatory system tied to their post-training goals. If the disturbance causes a large enough disruption (e.g., a conflict arises between the trainee and a coworker), the trainee should make a decision that some action must be taken (e.g., implement their recent conflict management training). This action will cause some change in their work behavior and lead to a certain outcome in their work environment (e.g., de-escalation of the conflict and better coworker relationships). The trainees are likely to evaluate the transfer performance of these newly trained KSAs based on the outcomes of this behavior, which they will assess relative to their short- and long-term goals.

2.3. From evaluation of the transfer attempt to future transfer actions

Based on the initial transfer attempt, trainees have the opportunity to assimilate available feedback from both themselves and others and integrate the feedback to inform future decisions and actions. Initial attempts by trainees to apply their training to improve performance can also lead to a subsequent change in capabilities. That is, the level of a trainee's knowledge, skill, or motivation may be enhanced based on these initial attempts. For example, motivation for transfer could be positively or negatively affected by the initial attempts and how well it went. The outcomes of an initial transfer attempt could also uncover knowledge or skill gaps that the trainee subsequently is motivated to address.

Lindsley, Brass, and Thomas (1995) note that initial success or failure on a task is particularly important to understanding learning and performance outcomes. Ashford (1989) suggested that early task performance provides individuals with hypotheses about themselves that serve as a filter for subsequent feedback that impacts effort and subsequent performance. Thus, individuals who have some initial success in applying a trained skill are likely to seek feedback that supports the self-view that the initial attempt was successful and thus lead to greater effort to apply trained skills. The trainees' attributions of their success or failure could also influence their motivation. For example, if a trainee makes an external attribution to a failed attempt, he may be more likely to make another transfer attempt.

Based on this evaluation process, trainees could decide to discard or give-up on transferring certain knowledge/skills. On the other hand, based on the initial transfer attempt, trainees may retain or modify KSAs with the intention to continue attempts to apply to the job. With continued opportunities and attempts to apply, one's skills can be improved from the level that one was at by the end of training. Thus, initial attempts and subsequent feedback would be expected to affect trainees' self-efficacy, subsequent goals, motivation to continue transfer, and future transfer of training behavior (Huang, Ford, & Ryan, 2017). Feedback loops are critical to incorporate into transfer research as they help us understand how trainees move toward meeting their goals by reducing discrepancies between goals and current actions (Carver & Scheier, 1990).

The outcome of this process determines whether and to what extent trainees intend to continue to utilize and apply their trained KSAs (i.e., form intentions to continue to apply KSAs at the next transfer opportunity). For example, if the employee discussed above successfully defuses a workplace conflict using their new training, they are more likely to attempt a similar approach to the same type of problem in the future. Whereas if they failed they are more likely to abandon that approach and try another. This self-regulatory process and feedback loop will ultimately determine the extent that the trainees attempt to implement their training (transfer-use), as well as whether themselves and others perceive that they have effectively implemented the training (transfer-effectiveness).

3. Three key elements and their implications for understanding transfer

Our model highlights three key elements that can serve as the foundation of transfer research and application. First, work

performance, its measurement, and the implications of measurement choice are a central focus of our model, so an enhanced understanding and intentional treatment of transfer criteria are required. Second, training transfer should be viewed from a dynamic interactionist perspective that highlights the importance of considering the interplay of individual, situational, and criterion constructs simultaneously over time (Hattrup & Jackson, 1996). Third, learners should be viewed as active participants with agency who engage in the personalization of transfer as they navigate the transfer process (Baldwin et al., 2009). In this section, we discuss the implications of DTM's focus on transfer criteria, dynamic interactionism, and the personalization of transfer for understanding training transfer.

3.1. Understanding transfer criteria

Training transfer is fundamentally about the impact of trained KSAs on relevant behavior at work (i.e., job performance) to achieve work objectives or outcomes. Our DTM explicitly differentiates between work behavior (i.e., performance), work outcomes and effectiveness measures, and evaluations (judgments) of performance. Although important in terms of assessing the organizational value of transfer, we exclude productivity, utility, return on investment and team, unit or organizational outcomes as they are outside the scope of the current discussion focused on transfer at the individual level.

The DTM adopts the perspective that performance is the episodic behaviors or actions of an individual at work that are relevant to the goals of the job or organization, not the outcome or consequence of those work behaviors or actions (e.g., Campbell, 1999; Campbell et al., 1993; Motowidlo, Borman, & Schmit, 1997). According to the conceptual definition, performance, which is inherently multidimensional, should be under the control of the individual, and its measurement should be free of contamination from other factors like resource availability or technology (e.g., Campbell, 1999). However, in practice, performance measurement is often constrained by context and contaminated by other factors. For example, work behaviors and evaluation of those work behaviors as job performance are not necessarily the same (e.g., Tett & Burnett, 2003) since evaluation is influenced by other factors, such as context and rater characteristics/biases.

A distinction between performance (i.e., the behavior) and the outcomes of that performance must also be acknowledged. While trainees' work behavior is directly influenced by their relevant knowledge, skills, and attitudes/motivation (e.g., Campbell et al., 1993), work outcomes are typically impacted by factors other than the individual's performance. For example, if guest service professionals receive training on how to provide exceptional customer service, the KSAs gained in training can directly influence how these professionals interact with a customer (i.e., their behavior). However, the outcome of the customer interaction (e.g., customer satisfaction) is likely to be affected by other factors, such as the customer's prior experience with the product or service, the pricing of competitors, or even unrelated experiences impacting the customer's mood that day. Therefore, the influence of training on work outcomes, such as overall customer satisfaction, is typically indirect, given that trained KSAs influence work behavior and work behavior influences work outcomes.

Consequently, criteria differences are important to consider not only because the nature and operationalization of the criterion impacts our understanding and interpretation of whether or not the trained KSAs were transferred to the work setting (e.g., Huang, Blume, Ford, & Baldwin, 2015), but also because these criteria provide different types and quality of information to the learner and other stakeholders to guide subsequent decisions and actions (e.g., whether a supervisor provides support or resources; or if the individual trainee engages in further transfer attempts or modifies what was trained to better fit the demands of the work context). As an example, consider a new trainer who recently completed her training and certification, taught her first course, and all the students subsequently failed the job-required certification exam. Performance on the certification exam is clearly important to the students, the instructor, and the organization. It is a measure of learning and proficiency for the students and a measure of effectiveness for the trainer and organization, but it provides no information related directly to the trainer's KSAs, the trainer's transfer, or the trainer's instructional behaviors. To get a more direct measure of the trainer's behaviors, information would need to be obtained regarding the new trainer's behavior in the classroom (e.g., instruction techniques). Otherwise, it would be difficult to diagnose whether the lack of effectiveness on the certification exam by the class is related to a KSA or transfer issue, the learners, the context, or multiple factors.

The types of criteria used and their measurement directly impact the information available for trainees and other stakeholders to use in order to make decisions and take actions to facilitate transfer. The type of criteria examined would depend on the context (e.g., position in the company, important performance outcomes) as well as the purpose or focus of the analysis/study. The DTM encourages a systematic approach to developing and using these criteria within the transfer cycle. At a minimum, a systematic approach would consider: 1) how the specific behaviors would be expected to change due to the training; 2) which outcomes these behaviors would influence; 3) who might observe or evaluate these behaviors/outcomes; and 4) how transfer can most effectively be measured within the relevant context to achieve the organization's objectives given the aforementioned information.

To illustrate this systematic approach using the prior example of conflict management training, the key identified behaviors might include whether the trainee identifies and utilizes an appropriate style when a conflict arises. The outcomes to be evaluated could be the extent to which the conflict was resolved in a satisfactory way and the effect that the approach to conflict had on the trainee's relationship with coworkers. Evaluations of the behavior/outcomes related to the trainee's conflict management behavior could be obtained from the trainee, his colleagues, and his supervisor. In summary, having appropriate transfer criteria is important for understanding the transfer process, especially how individual and situational characteristics impact and interact to impact a single transfer episode or transfer episodes over time, and how to use this information to make better transfer decisions and take appropriate actions. The next section addresses the need to apply dynamic interactionism to transfer and its implications for the DTM.

3.2. Dynamic interactionism

The DTM advocates for an interactionist perspective on transfer; which means taking individual, situational and criterion variables, their direct and indirect impacts, and their interactions seriously as related to transfer. Interactionist models are divided into mechanistic and dynamic models (Hattrup & Jackson, 1996). Mechanistic models explore the relationships of individual, situational and criterion variables for a single instance (cross-sectional), whereas dynamic models add the element of time, incorporating the interplay and reciprocal influence of the variables over time. While there has been some discussion in the literature regarding interactions between trainees and the transfer context (e.g., Smith-Jentsch, Salas, & Brannick, 2001), mechanistic and dynamic interactionism perspectives (see Hattrup & Jackson, 1996) have not been dominant perspectives in transfer research. We believe improving transfer and the transfer process (i.e., across time) for groups and individuals requires incorporating a dynamic interactionist perspective into transfer research, and the DTM specifically adopts this perspective. However, we acknowledge mechanistic models and research are valuable to inform the study of transfer as these efforts help to discover which key variables should be the focus of repeated measurement throughout the transfer process.

Transfer research typically measures single instances of key variables but provides conclusions about the relationships of these variables across the entire transfer process. Studies included in a recent meta-analysis on transfer indicate that situational factors, such as support, were typically measured at only one point in time (Blume et al., 2010). Similarly, motivation to transfer was typically measured only once and then conclusions are provided as to how factors, such as motivation and support, impact transfer outcomes. This approach makes an implicit assumption that there is stability in the person and situation over time. For example, climate factors are portrayed as having uniform impacts on individuals and that the perceptions of support remain the same for any one individual over time. However, the level of support could vary over the course of transfer attempts and across individuals. For instance, over time, successful transfer attempts could lead to more peer and supervisory support for transfer as others begin to see its value, thus creating a reinforcing cycle that creates positive spirals leading to more use and more opportunity to use the trained skills. Under a dynamic interactionist perspective, the interplay of key individual, situational and criterion variables would be modeled over multiple measurements and conclusions would be based on a longitudinal analysis of the data.

In general, transfer researchers have not taken a mechanistic interactionist perspective even when conducting studies in which all the variables are measured at single instances. In Colquitt, Lepine, and Noe's (2000; p. 700) meta-analytic study of factors impacting training motivation and transfer outcomes, they state that, "Although our results showed that such a climate has positive direct effects even when considered in conjunction with individual characteristics, it is also likely that such climates interact with individual characteristics. Perhaps positive climates could magnify individual difference effects in the same manner as high levels of autonomy and discretion (e.g., Barrick & Mount, 1993; Weiss & Adler, 1984)." We concur that examining these types of mechanistic interactions is critical to understanding training transfer and a valuable precursor to dynamic, longitudinal studies. This research can identify how specific individual characteristics, transfer context characteristics, and work behavior (e.g., requirements and standards; criteria) interact to influence the transfer of trained KSAs. Then, the findings can be used to develop models of the transfer process.

Although these types of mechanistic models are clearly needed to inform our understanding of transfer and measurement over time, mechanistic approaches alone are limited as they do not account for the interplay of the variables and changes in their interactions over time. A dynamic interactionist perspective is needed to better understand (a) transfer paths and not just a single transfer episode; (b) how the transfer process, or path, unfolds over time; (c) how decisions, activities, and feedback shape the transfer path for the trained KSAs; (d) how the transfer path evolves over transfer attempts in response to repeated performance and feedback cycles; and (e) how transfer experiences and episodes shape the transfer environment and criteria through reciprocal influences over time.

The transfer path starts with learning the specific KSAs and evolves from the first transfer opportunity. Initial transfer is critical as it starts the journey down the transfer path. Over subsequent transfer episodes, as the trainee receives and processes performance feedback in the specific work context, the trainee will contextualize the trained KSAs and their application to various job situations and performance requirements. As this happens, the trainee's transfer episodes can simultaneously impact and shape the work context and the organization's choice, definition, and evaluation of criteria.

Reciprocal influence of the individual's transfer on the context and criteria over time is central to a dynamic interactionist perspective. Dynamic interactionism allows for the possibility that an individual's transfer attempts influence and impact the context and criteria as well as the trained KSAs (Hattrup & Jackson, 1996). For example, after the successful transfer of new sales skills into sales behavior and improved sales outcomes, the company could raise the performance standards for sales activities and monetary sales goals (i.e., change to the criteria standards), or change the compensation policy on how meeting these criteria are reflected in compensation (e.g., change to a contextual factor). In turn, these changes may impact the individual's subsequent transfer decisions, activities (e.g., coordinating with coworkers) and attempts, as well as evaluations of her transfer success. The DTM's incorporation of time allows for the thorough investigation of these interactions and reciprocal influences, improving our understanding of transfer.

3.3. The personalization of transfer

The DTM acknowledges and incorporates the personalization of transfer. A personalization perspective implies that trainees have some degree of choice in what, when, and how to transfer trained KSAs. This corresponds with increased individual agency and control of work and learning in the workplace and the notion that the trainee is an active participant in learning and transfer (Bell & Kozlowski, 2008; Bell, Tannenbaum, Ford, Noe, & Kraiger, 2017). Consistent with this perspective, the DTM views transfer as a series of choices that trainees make to discard, maintain, apply, or modify trained knowledge and skills in their work context (Baldwin

et al., 2009). We acknowledge that trainees have agency for their transfer decisions and activities and that their agency leads to increasingly personalized transfer episodes and paths as trainees move further and further away from the training event in time. As is illustrated in the DTM, this personalization is likely to occur due to differences in trainees, their KSAs, and the transfer context.

The personalization of transfer begins even prior to attending the training experience. The DTM recognizes that individuals come into training with all sorts of differences in terms of personal characteristics, goals, expectations, needs, and attitudes toward training that not only can impact learning but also can impact transfer outcomes (Ford & Kraiger, 1995). For example, in a leadership seminar, more experienced trainees may be less motivated to attend the training and be looking for one or two take-away points in how to improve their leadership skills, while less experienced trainees may be more motivated to learn and subsequently transfer multiple strategies from the seminar. Individuals will also differ in their intentions to apply trained knowledge and skills.

We expect this personalization process to continue throughout the transfer experience. Some may apply a similar amount of what is trained but completely focus on different trained KSAs. Some trainees may apply or generalize one idea or general principle across job situations while another only applies a very specific procedure to one particular type of job situation. Over time, one might seek out new situations to apply a certain trained KSA, while at the same time decide to discard another trained KSA after an initial attempt. Across those trained, Yelon, Ford, and Bhatia (2014) showed that within two to three years post-training, many individuals had greatly expanded the use of their training beyond direct use on their particular job to other domains outside of work. Others not only were applying trained KSAs to their job (regardless of changes in job duties), but also had attempted to persuade others of the virtues of applying trained principles or were even voluntarily teaching others some of the skills that were obtained during training.

In addition, the DTM recognizes that the personalization of transfer is influenced by the work context, such as the training's value as signaled by managers and leaders (Towler, Watson, & Surface, 2014). Johns (2006) proposed a model focusing on the discrete and omnibus levels of context. The discrete level can be organized into social, task and physical context factors that directly impact behavior, whereas the omnibus level consists of the organizational and society factors (e.g., with laws, policies and business objectives) that influence behavior through its impact on the discrete context. Work contexts and tasks differ in terms of the opportunity for individuals to tailor their performance and, therefore, tailor their transfer of new skills. For example, most knowledge workers have freedom to tailor their approach to perform tasks whereas other workers, such as telemarketing employees, might be required to follow a strict protocol and script. Where highly structured work tasks and/or work environments are present (e.g., performance contexts in which the tasks, conditions and standard are highly specified and directed) and there is less variability in the work or work environment of individuals in the same role, transfer opportunities, episodes and paths are likely to be more similar as the nature and context of the work constrain the ability to tailor transfer in similar ways for all individuals who share that context. On the other hand, transfer contexts with variability in work tasks and environments across individuals in the same role are likely to have more personalization evident across the trainees' transfer paths.

These concepts regarding contextual factors build on the research of other scholars. For example, Yelon and Ford (1999) stated that training can focus on building more open skills or more closed skills. Open skills are those where there is more than one way to act, whereas closed skills are those where tasks are more highly prescribed and there is frequently one best way to complete a task. Blume et al. (2010) found that predictor–transfer relationships were stronger for open than for closed skills (e.g., for motivation and work environment). In addition, strong situations provide salient information for successful behavior and less opportunity for individual differences and choice to operate (i.e., telemarketing employees with a standardized script), and weak situations provide less information on expected behavior (e.g., no script) and more opportunity for individual differences and choice to operate (e.g., knowledge workers; Mischel, 1977, 1979; Beaty, Cleveland, & Murphy, 2001). While the personalization of training may be constrained in stronger situations or with closed skills, the individual must still choose to personalize learning and transfer to fit or align with the demands of the context when applying the KSAs to the job.

4. Implications for future research

The DTM has implications for future research. In particular, the model points to constructs and processes that are relevant for understanding transfer from a dynamic interactionist perspective. In this section, we highlight the need for future research in three areas - early transfer experiences, the impact of work experiences on individualized patterns of transfer over time, and the need to pay more attention to the measurement of transfer over time.

4.1. Early transfer experiences

The DTM contends that early experiences on the job are critical to understanding the different trajectories that unfold over time. While research has typically measured transfer soon after training (Blume et al., 2010), there is a need for research that investigates the extent to which these initial attempts impact later attempts to apply the KSAs gained in training. Research is also needed to understand the factors impacting the gaps between intentions after training and initial attempts, and from the initial attempts to subsequent transfer attempts. Research in areas outside of the training field provides insight into understanding the factors that impact the building of positive momentum and expanded use of training, as well as those factors that can lead to goal abandonment and disengagement from applying new trained skills after initial attempts to transfer.

Jansen (2004) examines the concept of momentum (and the counterweight of inertia) during the early stages of an organizational change initiative, which has implications for understanding transfer. She proposes that momentum is a dynamic process that fluctuates in response to various person and contextual factors that can also vary over time. She notes that the level of momentum at one point in time affects the level of progress in pursuit of a goal and that this level of progress impacts the next level of momentum. This

perspective is also consistent with work in organizational change on emergence and complexity theory whereby early, small steps can have ripple effects that help build energy that drive future efforts. This process is better represented in terms of spirals and trajectories rather than a linear process (Hodge & Coronado, 2007). The relationship between psychological momentum and performance has also been described at the individual level of analysis by Vallerand, Colavecchio, and Pelletier (1988), in which momentum is seen as enhancing subsequent performance and that enhanced performance then becomes an antecedent of future momentum states, leading to positive spirals.

From a self-regulation perspective, Carver and Scheier (1998) discuss expectancies regarding tasks as a product of that individual's history with that task. This suggests that feelings of efficacy, which is a type of expectancy, is largely derived from their experiences with a task leading to “confidence” or “doubt” about future endeavors. Meta-analytic evidence supports this view as Sitzmann and Yeo (2013) found that the self-efficacy-performance relationship was nonsignificant when controlling for the linear trajectory, while the past performance-self-efficacy relationship was still positive when controlling for the linear trajectory. They concluded that self-efficacy is a product of past performance more than it is a driver of future performance. These research efforts suggest that the level of initial success in applying training should have large impact on subsequent attempts. As highlighted by the DTM, we would expect these same underlying mechanisms to be at play when trainees are making initial attempts to transfer their KSAs. Research is needed that studies the complex interplay of opportunities to apply trained skills, workgroup support, and initial level of success on feelings of confidence or doubt and this impact on future transfer efforts.

Other research provides support for understanding why goals set during training might be abandoned and transfer may not be maintained over initial attempts (Sitzmann & Weinhardt, 2017a). In particular, research on decision making, emotions, and expectancies indicate how regret and disappointment (as well as the anticipation of regret and/or disappointment) can impact subsequent actions. In particular, Zeelenberg, van Dijk, Manstead, and van der Pligt (2000) note that we form expectations when under some degree of uncertainty about the possible outcomes of different courses of action that give direction to our behavior. When those expectations are not met (e.g., the new trained skills when applied do not lead to desired outcomes as expected), one can feel regret or disappointment. Regret is an emotion in relation to the rejected option of maintaining the status quo (i.e., performing tasks the same way as in the past) rather than the unsuccessful application of trained skills. Feelings of regret can lead to reflecting on why one feels regret and what actions to take to learn from this “mistake” – including returning to the status quo and abandoning training transfer intentions or goals. This could also lead to a strategy of avoiding making a decision to apply or not apply training – what has been described and studied as procrastination (Choi & Moran, 2009; Tice & Baumeister, 1997).

Research on learning and transfer has tended to focus more on cognitive components such as self-efficacy rather than address more emotion-laden factors (Bell & Kozlowski, 2009). We believe that emotional factors such as anticipated regret and disappointment as well as emotions of elation (van Dijk & van der Pligt, 1997) provide new windows into the reactions of trainees to initial attempts to try out trained skills that can impact subsequent attempts. As noted by Zeelenberg et al. (2000), the potential differential effects for regret and disappointment demonstrate the need for emotion-specific predictions. Future training research could make emotion-specific predictions that can predict behavioral trajectories after training based on reactions to the success or failures of initial attempts to transfer. For example, the intensity of one's disappointment that the workplace is not supportive of training should have an impact on subsequent attempts to continue to try and apply from initial attempts.

The DTM also indicates that certain individual differences could have a large impact on transfer due to their impact on early transfer experiences, including trait procrastination (Baldwin et al., 2009; Steel, 2007), feedback-seeking behavior (Ashford & Tsui, 1991; De Stobbeleir, Ashford, & Buyens, 2011), and resilience (Windle, 2011). For instance, one study has shown how resilience was related to the tendency to engage in and finish a faculty training program on the use of educational technologies in the face of challenging obstacles (Montero-Hernandez, Levin, & Diaz-Castillo, 2014). In addition, the DTM suggests that these types of individual differences could interact with the context in the workplace. For example, trainees high on trait procrastination may particularly benefit from a setting with high accountability and where contingent rewards are salient. In other words, we could expect the effect of these contextual characteristics over time to lead to a larger increase in transfer for trainees high in trait procrastination than those low in trait procrastination.

4.2. Individualized patterns of transfer

The DTM contends that trainees take different paths after training and that each's trainee's transfer experience will be to some extent unique. This personalization process in transfer suggests that, in additional to between person-analysis, a within-person analysis of trainees is needed to understand the transfer process over time. A within-person perspective enables researchers to capture the dynamic nature of these processes (Sitzmann & Weinhardt, 2017b). For example, researchers can begin to ask questions such as, ‘Why do trainees apply some training objectives rather than others?’; ‘Why do the transfer trajectories of some trainees increase more than others over time?’; and, ‘Why do some trainees persist in attempting to transfer training while others do not?’. We anticipate that an understanding of how the KSAs and personal characteristics (e.g., personality) of the trainee interact with his or her work context (e.g., supervisor support) would provide valuable insights for answering these types of questions.

The benefit of looking at within-person relationships has been demonstrated in the job performance context, including multilevel techniques to take a closer look at the differences across, between, and within-person levels of analysis in order to better understand variations in job performance (Hofmann, Jacobs, & Baratta, 1993). These studies have consistently shown within-person variability to comprise a large amount of the overall variability in performance (e.g., Debusscher, Hofmans, & De Fruyt, 2014; Hanks & Beier, 2012). Application to transfer research suggests the need to understand the factors that maintain states within individuals that facilitate learning during training. In transferring the training knowledge to the workplace, maintaining these states outside of the

training situation may be just as important as making sure to provide the opportunities and incentives to express the learned behaviors. This notion suggests the need to collect data on individuals across different transfer situations (e.g., being assertive with a customer or a supervisor) and time so that aspects of the situation or context can be studied as a potentially important source of variance in transfer.

Some efforts have been made to understand within-person variance in learning during training (Hardy, Day, Hughes, Wang, & Schuelke, 2014; Molinsky, 2010; Scholz, Nagy, Schüz, & Ziegelmann, 2008). Others have also outlined training effectiveness from a multilevel perspective (Kozlowski, Brown, Weissbein, Cannon-Bowers, & Salas, 2000; Sitzmann & Weinhardt, 2017a, 2017b). Könen and Karbach (2015) argued for looking at intra-individual differences in cognitive training in an attempt to explain why the same individuals can have disparate outcomes from the same training program. Another potentially fruitful avenue of research would be to use experience sampling methodology (Fisher & To, 2012) to study the intention to transfer and the evaluation of success in the initial transfer attempt and subsequent application. This could include future research to better understand how attributions that trainees make about their transfer outcomes influence these evaluations and ensuing transfer attempts. Overall, the DTM encourages these types of methods to examine transfer at the within-person level of analysis.

In addition, with recent advances in structural equation modeling related to multilevel modeling (e.g., Heck & Thomas, 2015), the feasibility of studying transfer from a dynamic interactionist perspective has greatly increased. An avenue for future research would be to examine differences among trainees' transfer trajectories, depending on the amount of time that passes between training and transfer and other factors, using hierarchical or multilevel models (e.g., Chen, Thomas, & Wallace, 2005; Raudenbush, 2001). Hierarchical linear modeling (HLM) techniques can be used with repeated measurements of a criterion or with multiple dependent variables, and it can handle the unbalanced, differential occurrences of transfer experiences and measurements across individuals (Heck & Thomas, 2015). HLM also allows for the modeling of context as a single level (e.g., a team or class), or as multiple levels (e.g., levels of a work organization). Researchers could model criteria over time within the individual and the hierarchy of a work organization to account for the individual and contextual influences, as well as the cross-level interactions impacting changes in the criteria. Finally, transfer researchers could use a piecewise growth model (Heck & Thomas, 2015) to determine the impact of interventions or organizational policy changes on transfer when repeated performance or maintenance criteria exist by comparing the pre- and post-event slopes of the individuals, while accounting for relevant individual and situational characteristics.

Other techniques, such as time series analysis (Box & Jenkins, 1976; Fuller et al., 2003; Wang, Zhou, & Zhang, 2016), could also be utilized to study the impact of transfer activities on frequently repeated measures of transfer performance or effectiveness over time. In general, time series is appropriate whenever periodic criterion measurement exists and there is a change, such as an intervention, policy change or event expected to impact the criterion of over time. For example, before and after sales training, an organization could track performance behavior (e.g., sales pitches made consistent with what was trained) and outcomes (e.g., average amount of each sale or sales booked per week) of its sales professionals on a weekly basis. One could study the changing nature of intentions as well as adaptions made to what was trained (e.g., changes to sales pitch) linked to the critical outcomes of weekly sales to see if those who adapt techniques are more successful than those who stick with the training steps (irrespective of success). One of the advantages of time series is that it can be applied to the repeated measures data of an individual, group or organization. Therefore, if a researcher only has organization-level criterion data, such as the average transfer level (use) or average skill proficiency level (maintenance), and wants to determine the impact of a change from an organization-wide training event, then time series would be appropriate.

4.3. Measurement of transfer over time

In order to effectively assess transfer over time, the DTM indicates that the transfer measures should account for the complexity of the transfer process. The choice of transfer criterion (e.g., use or performance outcomes) may impact our ability to detect the influences of individual and situational factors on transfer of KSAs during early and later attempts. These factors may interact differentially depending on the criterion and its relationship to the trained KSAs. Research has recognized the difference in transfer outcomes between the use of the trained skill and the effectiveness of transfer, as individual and situational factors may have a differential impact on transfer when measured as use versus as effectiveness (Blume et al., 2010). The DTM clearly differentiates between the use and effectiveness of transfer, in that attempting to apply the training (e.g., transfer attempts) would be considered use, while the work behavior (and possibly subsequent work outcomes) would be an indicator of transfer effectiveness.

Since many field studies examine transfer at one point in time ranging from a few weeks to several months after training (Blume et al., 2010), some issues could arise when assessing the use or effectiveness of transfer. If assessing transfer-use, researchers may ask trainees or raters to make an aggregate assessment of the extent to which trainees have utilized their training over the past few months (e.g., Tracey, Tannenbaum, & Kavanagh, 1995). Alternatively, when assessing transfer-effectiveness, raters may be asked to evaluate how effective they have been across the number of times that the trainee has attempted to apply their training (Xiao, 1996).

One of the goals of our model is to explicitly recognize these assumptions regarding the assessment of transfer as use and/or effectiveness. For example, it is conceivable that a trainee might attempt to apply the training ten times over the course of ten weeks (i.e., let's assume once per week), with various outcomes. The DTM suggests that these ten transfer attempts would each have various outcomes that would determine which KSAs the trainee would retain, modify, or discard. For discussion purposes, let's say the first five attempts were less successful and the last five transfer attempts were more successful or effective. If we were to ask this trainee to evaluate transfer after the first five attempts (in week five), we would probably get an indication of a reasonably high level of transfer-use, but a lower evaluation on transfer-effectiveness. If we waited until week ten, then the trainee would likely report high levels of use and effectiveness (even though the first five transfer attempts were less effective). Of course, in this scenario there are a

number of combinations in the way that effective or ineffective transfer attempts could occur. Where possible, decoupling assessments of the transfer cycle by obtaining multiple measures of use and effectiveness over time should increase our understanding of the transfer process. For instance, continuing with the previous section's sales example, measures to evaluate the transfer attempts and work behavior (i.e., transfer-use) could be added to the weekly sales metrics (i.e., outcomes or transfer-effectiveness) to provide a more complete understanding of the transfer process.

Future research that asks trainees additional questions besides those focused on use and effectiveness could provide insight into the transfer process (e.g., Approximately how much time passed before your first attempt to use your training on the job?; Were you more or less inclined to continue to utilize your training after your first attempt?). When assessing effectiveness, the DTM suggests that the trainee or others can evaluate the work behavior and how it influences performance, but ultimately the trainee will make an evaluation of his/her behavior and performance, integrate feedback, and make a decision on whether to pursue another transfer opportunity. In examining transfer effectiveness, trainees or others could be asked about the effectiveness of early versus later transfer attempts.

In addition, since Baldwin and Ford's (1988) seminal paper, few models of training evaluation/transfer have incorporated a feedback loop into the transfer process or discussed the dynamic process of transfer that occurs over time. As an exemplary exception, Huang et al. (2017) contend that the continual application of trained knowledge and skills on the job may result in various transfer trajectories for different trainees. That is, some trainees may decrease their application of trained knowledge and skills over time while others would maintain or enhance transfer over time. They investigated within-person variability in mastery goal orientation and variability over time in the application of statistical skills to the job. Participants completed six surveys after training to examine the extent to which the trainees reported using the newly acquired knowledge and skills in different research contexts. They found that trainees varied in their initial attempts to transfer and the subsequent rate of change in transfer behaviors. They also found that post-training self-efficacy predicted initial attempts to transfer, while motivation to transfer predicted the rate of change in behavior in the transfer setting.

We encourage additional research along these lines, as these types of studies will enable us to examine transfer maintenance (e.g., Dierdorff & Surface, 2008) and transfer curves (Baldwin & Ford, 1988; Blume et al., 2010). While our discussion of the DTM has focused mostly on the use and effectiveness of trained KSAs, the DTM can also be applied to the maintenance of KSAs. Ellington et al. (2015) found that the transfer time interval negatively impacted a measure of skill maintenance (i.e., standardized skill assessment) but not a measure of skill generalization (i.e., supervisor ratings), demonstrating interaction between time and the nature of the criterion in one training context. Although systematic research is needed to draw robust conclusions, these results suggest that there is an interaction of individual, situation, criteria and time. Researchers could also examine how individuals seek out opportunities to maintain and further develop their KSAs as they are waiting for a relevant transfer opportunity. Change modeling techniques would enable researchers to examine the changes in transfer over time (McArdle, 2009), while taking into account effects from the prior transfer assessments in the model. This could lead to a better understanding of how individual differences and contextual variables influence transfer criteria and transfer cycles over time.

Finally, although much of the prior work in transfer has utilized self-report measures (Blume et al., 2010), with the advancement of technology it is becoming easier to overcome the limitations of self-report data (e.g., Kruger & Dunning, 1999; Sitzmann, Ely, Brown, & Bauer, 2010) and to collect objective indicators of trainee behavior. For example, point of sale systems used by many businesses such as fast food restaurants have the potential to store detailed information on every transaction made (e.g., sales volume, time needed to process transactions, or how long specific actions in the system require). In addition, individuals increasingly carry smartphones or wear devices which allow them to closely track their behavioral tendencies, in what has been called the movement toward a Quantified Self (Fawcett, 2015). The objective data extracted from such devices could be utilized to assess transfer. These examples are part of a larger movement toward the use of Big Data, which psychologists are beginning to utilize (Harlow & Oswald, 2016). Big Data techniques based in machine learning can derive predictive algorithms from large pools of potential indicators for outcomes of interest (Chapman, Weiss, & Duberstein, 2016). Such techniques are also applicable to the Quantified Self data to derive the type of insights individuals and businesses may want from such technology. Once the algorithms are obtained, time series data from individuals may provide insight into their behaviors (Fawcett, 2015). As these techniques and data regarding the behavior of employees becomes more accessible, we believe they can become powerful tools for assessing transfer behavior and outcomes, as well as directing training interventions.

5. Implications for practice

The DTM also suggests a number of practical implications for stakeholders. The interactionist view of transfer highlights the importance of focusing not only on the work task and its associated KSAs in decisions, but also on the impact of individual, situational and criterion characteristics and their interaction in the task context. A failure to account for the interactionist perspective may lead to poor alignment between training, capability and performance requirements because key influences and their impacts were not considered. The DTM can be used by stakeholders to understand the leverage points to make better decisions when identifying and specifying training needs, supporting transfer immediately after training, and for the measurement and use of criterion data.

Transfer and training needs assessment (TNA) can and should be related, as a well-done TNA can align trained KSAs with performance and evidence of transfer can be used to evaluate the effectiveness of the training (Surface, 2012). The DTM highlights that a TNA should explicitly consider how quickly after training individuals will likely make their first transfer attempt. This can inform training design decisions, such as whether relapse prevention training (Hutchins & Burke, 2006) is likely to be useful. Also, the TNA should provide knowledge about the context and the different types of situations that trainees are likely to encounter when first

applying their training, which can inform how the KSAs are trained. The TNA should also explicitly consider how certain individual differences of trainees are likely to interact with these different contexts/situations. By integrating this type of information into the TNA, trainees can be better prepared and more successful in their early transfer attempts, which should lead to increased organizational effectiveness (van Eerde, Tang, & Talbot, 2008).

Given that our model highlights that early transfer attempts are likely to be influential, organizations should do a better job early on in the training process to provide appropriate support at that time. For example, supervisors could set-up a meeting with the trainee to discuss transfer attempts and to provide any necessary guidance and encouragement (e.g., similar to an after-action review conducted in the military setting). In addition, different types of support are likely to be needed at different times throughout the transfer process. In fact, 'personalized' support for each trainee in the form of a manager or 'transfer coach' could be provided. This coach could endeavor to understand how the trainee's individual differences and their context are likely to influence the transfer process, and to provide support to the trainee accordingly. Incorporating these types of accountability mechanisms into the context is likely to be effective in promoting transfer (Baldwin & Magjuka, 1991). Burke and Saks (2009) also recommend that organizations conduct an accountability audit to identify where accountability weaknesses exist in an organization and which stakeholder groups require clearer prescriptions and expectations for transfer.

We also advocate for taking a systematic and deliberate approach to the selection and development of transfer criteria. Practitioners should consider the implications of these decisions in terms of the desired inferences to be made throughout the transfer process and the feedback usefulness of each criterion for the trainee and other relevant stakeholders (e.g., manager). As the DTM focuses on trainees as active participants in the transfer process that make decisions based on feedback, the information conveyed by the available criteria directly impacts the quality and nature of the feedback (e.g., specificity) and, therefore, the decisions and actions resulting from the feedback. For example, if restaurant servers receive training on how to improve customer service, then decision-makers may want to have managers observe and rate trainee behavior or make customer satisfaction survey results related to their service available. Feedback on these types of criteria should be beneficial in helping the trainees evaluate their performance, modify KSAs as necessary, and continue to implement their training.

6. Conclusion

The DTM expands our perspective of training transfer, and we encourage future research to investigate the issues raised by this model throughout this paper. We anticipate that this research will lead to a more complete and nuanced understanding of the transfer of training process.

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