Industrial and Organizational Psychology
PERSPECTIVES ON SCIENCE AND PRACTICE

A Growth and Fixed Mindset Exposition of the Value of Conceptual Clarity

DON VANDEWALLE
Southern Methodist University

In reading their constructive review of the learning agility literature (DeRue, Ashford, & Myers, 2012), the methodical deconstruction and reconstruction of the definition of learning agility struck me as a valuable process. In essence, learning agility is not defined as the motivation to learn or by performance success. Rather, learning agility is about *how* one learns from experience within the conceptual parameters of speed and flexibility. This conceptual clarity then provides a strong foundation to propose six cognitive and behavioral processes that underlie how one learns from experience.

Correspondence concerning this article should be addressed to Don Vandewalle.
E-mail: dvande@cox.smu.edu
Address: Management and Organizations Department, Cox School of Business, Southern Methodist University, PO Box 750333, Dallas, TX 75275-0333

However, the definitional and process clarity raised questions in my mind about the proposed exemplary examples of the antecedents of learning agility. One of the suggested antecedents, Openness to Experience, may be predictive of the motivation to seek out new experiences but may not explain *how* one learns from experience. As a form of achievement motivation, goal orientation would seem to be a more promising predictor of learning agility, as prior research has shown that a strong learning goal orientation predicts effort, persistence, and feedback-seeking behavior (Vandewalle, 2001). However, the extant goal orientation literature seems incomplete for developing strong theoretical arguments to predict all six of the underlying processes of learning agility. Per intelligence as a predictor of learning agility, it seems intuitive that intelligence would foster learning agility, but many of us have observed enough examples of ''smart'' people failing to learn from experience to give us pause about the ubiquity of such a relationship. To date, the limited research findings on the antecedents of learning agility are consistent with the above reservations. For example, the authors note that De Meuse, Guangrong, and Hallenbeck (2010) did not find evidence in the literature of a statistically significant relationship between a learning goal orientation and learning agility. Likewise, a dissertation by Connolly (2001) found that learning agility had very modest correlations with Openness to Experience ($r = .13$), learning goal orientation ($r = .07$), and intelligence ($r = .08$). However, as the focal article authors note, it's not clear to what degree such relationships are a function of the extant measurement of learning agility.

Despite my concerns about the proposed antecedents of learning agility, these concerns only reinforce my belief in the potential contributions of the authors' article as it illustrates why conceptual clarity is so important. Specifically, the authors' conceptual clarity and specification of the underlying cognitive and behavioral processes provide a strong platform for the purpose of this commentary: a proposal that Dweck's (1999) implicit theory concept is a promising predictor of learning agility and engagement in the processes underlying learning agility.

Implicit Theories (Fixed and Growth Mindsets)

Implicit theories are the lay beliefs that individuals hold about the malleability of personal characteristics such as intelligence, various forms of ability, and personality (Dweck & Leggett, 1988). With a prototypical *entity* implicit theory, one believes that a given personal attribute is largely a fixed entity that is difficult to change or develop. In contrast, with a prototypical *incremental* implicit theory, one believes that personal attributes are relatively malleable and thus amenable to change and development (Dweck & Leggett, 1988). In more recent research, Dweck (2006) has also used the terms growth mindset and fixed mindset to represent incremental and fixed implicit theories. For this commentary, I follow Dweck's lead and utilize the more contemporary mindset terminology.[1]

Dweck and Leggett (1988) proposed that fixed and growth mindsets create frameworks for interpreting and responding to the events that individuals experience. For example, when individuals hold a fixed mindset that their intelligence is a static attribute, poor performance on an intellectual task is primarily attributed to a lack

1. In discussing goal orientation and mindsets, I note that although these two constructs are theoretically related, the two constructs are also conceptually distinct. The constructs are conceptually distinct in that an implicit theory is one's *belief* about the malleability of a given attribute such as intelligence, and goal orientation represents one's *purpose* in an achievement setting. The two constructs are related in that beliefs about malleability affect the feasibility of various goal orientations. Specifically, a learning goal orientation is feasible if one holds a growth mindset about a given attribute being malleable. In contrast, a learning goal orientation becomes less feasible with a fixed mindset about the same attribute, so one is left with pursuing a performance goal orientation to validate the possession of the attribute.

of intelligence and the perceived prognosis for future success on the task is low. In contrast, when individuals hold a growth mindset about intelligence, poor performance is viewed as a signal of the need for more effort and an improved strategy, and with such an approach, the potential of future task success is much more hopeful.

In contrast to their early research in subsequent research Dweck and colleagues (e.g., Chiu, Hong, & Dweck, 1997) found that mindsets not only influence self-judgments but also influence judgments about others. Specifically, they found that a more general *implicit person theory* about whether people in general can change was a potent predictor of interpersonal judgments. I thus cite research related to both self and other judgments for various domains.

I next explain why fixed and growth mindsets are strong candidates to predict each of the cognitive and behavioral processes underlying learning agility.

Learning Agility Processes and Fixed and Growth Mindsets

Pattern Recognition

Research evidence suggests that one's mindset influences pattern recognition. In a seminal study, Chiu et al. (1997) found that compared with individuals with a growth mindset, individuals with a fixed mindset made more rapid judgments and predictions about others, and they were willing to do so with the limited data of just a single behavior. By making rapid judgments with limited data, individuals holding a fixed mindset may be quicker (from the proposed learning agility perspective), but they are also at risk of making less accurate pattern recognitions of the data observed.

With a fixed mindset, pattern recognition also appears to be a challenge when learning a new skill. For example, Kray and Haselhuhn (2007) studied learning how to negotiate in a semester-long academic course. They found that compared with those with a fixed mindset about negotiation ability, those with a growth mindset were more effective during the semester at learning course concepts, discovering effective strategies, and achieving higher outcomes.

Counterfactual Thinking

Multiple studies suggest that holding a fixed mindset makes counterfactual thinking less likely. For example, Erdley and Dweck (1993) exposed study participants to negative information and then positive counterevidence about an individual. Compared with a growth mindset, those with a fixed mindset were less likely to revise their initial negative judgments about the individual. In a follow-up study, Plaks, Stroessner, Dweck, and Sherman (2001) found that when individuals were provided with initial stereotype information about an individual (a priest or a neo-Nazi skinhead), those with a fixed mindset paid greater attention to subsequent information that was congruent with the initial stereotype, and those with a growth mindset paid greater attention to information that was inconsistent with the stereotype.

Building upon this prior research, Heslin, Latham, and Vandewalle (2005) conducted a series of experiments to test performance appraisal accuracy. In two studies, nuclear power plant managers watched and evaluated examples of an actor in a video clip performing very poorly (Study 1) or very well (Study 2) on a negotiations task. When the managers in each study then watched the same actor complete a second negotiations episode at the converse performance level of the first, they found that the growth mindset managers had more accurate evaluations of the second episode—specifically, a growth mindset appeared to decrease the anchor effect of the first round of negotiation performance. In Study 3, they found that those with a fixed mindset, but not a growth mindset, gave lower performance ratings for the actor's strong negotiations performance when they were first exposed to negative information about the negotiator.

Finally, Kray and Haselhuhn (2008) reported a study using the Carter Racing

simulation, based on the Space Shuttle Challenger disaster. They found that those with a fixed mindset were less likely to consider disconfirming information that challenged the decision to launch, and in turn, were more likely to make a decision consistent with the ill-fated Challenger launch.

The above studies indicate that, when one holds a fixed mindset, that initial information becomes an anchor that impedes the likelihood of engaging in counterfactual thinking.

Cognitive Simulations

Research has also investigated information processing styles. First, studies have found that compared with a growth mindset, individuals with a fixed mindset encode initial information about people and situations differently in that they attach stronger positive and negative evaluative labels to the information (Hong, Chiu, Dweck, & Sacks, 1997).

Second, Chiu et al. (1997) found that those with a fixed mindset are more prone to halo-effect biases. Compared with those with a growth mindset, when fixed mindset individuals were provided with information about a target's dispositional-relevant behavior for one occasion, they were more likely to expect similar outcomes to recur for very different situations in the future.

If individuals with a fixed mindset deeply encode positive and negative information about a new situation, and they consider that deeply encoded information to be predictive of outcomes in other situations, then such information processing tendencies may impede learning transfer. Specifically, when individuals are preoccupied with identifying the similarities of the first and second situation, they may not as effectively also recognize the important differences between the two situations.

Feedback Seeking Behavior

A series of studies by Heslin and Vandewalle (2005) indicates that one's mindset influences feedback seeking behavior from others. In the first two studies, they found that the growth mindset of a manager had a positive relationship with his or her seeking of negative feedback from subordinates when self-reported by the manager ($r = .38$) and when rated by the subordinates ($r = .30$).

In the final study, participants were asked to indicate what type of feedback they expected to receive when sought from their manager after experiencing several job promotion setbacks. The authors found that individuals with a fixed mindset indicated that the manager's feedback would be a judgment about their talent, and those with a growth mindset indicated they were more likely to receive feedback that would be useful diagnostic information.

Experimentation

Experimenting with new behaviors and strategies can put one at risk for failure. Fixed and growth mindsets should predict differential proclivities to engage in experimentation. With a fixed mindset, ability is perceived as a fixed capacity, and performance is an indicator of that fixed capacity. The fear of failure of an unsuccessful experiment, and the corresponding exposure of one's inadequate ability, is likely to reduce the willingness to engage in experiments. In contrast, with a growth mindset, ability is perceived as a more malleable capacity that can be developed. In addition, with a growth mindset, there is a greater receptiveness to challenging situations that provide opportunities for learning. Individuals with a growth mindset should thus be more willing to engage in experiments to extend their learning.

Reflection

Recent research by Moser, Schroder, Heeter, Moran, and Lee (2011) provides initial evidence that a fixed mindset may impede the reflection needed to learn from experience, especially when mistakes are made. The study participants worked on

a computer-based pattern recognition task and wore an EEG (electroencephalography) cap on their head to monitor their brain electrical activity when mistakes were made. On the basis of the EEG data, the researchers found that compared with a fixed mindset, a growth mindset enhanced attention to mistakes. In turn, the enhanced attention to mistakes improved performance after the error. Although this study was a short-term experimental session and focused only on error detection and correction, it provides an impetus to examine whether a growth mindset also has a productive impact on reflection about experiences over longer time periods.

The Interaction of Intelligence and Mindsets

The above text warrants a return to the focal article proposal of intelligence as an antecedent of learning agility. Although I suggested that intelligence may not necessarily predict learning agility, it strikes me that the interaction of intelligence with one's mindset might enhance the explanatory power of each. Specifically, given the evidence presented for the relationship of a growth mindset with pattern recognition, a growth mindset may reduce the initial speed of learning because of the more comprehensive evaluation process used. However, higher levels of intelligence could help offset the loss of speed that occurs with a more comprehensive evaluation process.

In summary, the focal article provides an excellent example of the vital, nitty-gritty research required to understand the essence of a construct, which is in turn a critical step for developing valid measures of the construct. This commentary sought to illustrate yet another powerful benefit of such research—that we also need conceptual clarity to effectively develop and test theoretical models of the substantive relationships of a construct such as learning agility.

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