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# Learning By Thinking: How Reflection Improves Performance

by Giada Di Stefano, Francesca Gino, Gary Pisano &amp; Bradley Staats

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**OVERVIEW** — Knowledge plays an important role in the productivity and prosperity of economies, organizations, and individuals. Even so, research on learning has primarily focused on the role of doing (experience) in fostering progress over time. To compare the effectiveness of different sources of learning, the authors take a micro approach and study learning at the individual level. They argue that learning from direct experience can be more effective if coupled with reflection—that is, the intentional attempt to synthesize, abstract, and articulate the key lessons taught by experience. Using a mixed-method approach that combines laboratory experiments and a field study in a large business process outsourcing company in India, they find support for this prediction. Further, they find that the effect of reflection on learning is mediated by greater perceived ability to achieve a goal (i.e., self-efficacy). Together, these results reveal reflection to be a powerful mechanism behind learning, confirming the words of American philosopher, psychologist, and educational reformer John Dewey: "We do not learn from experience ... we learn from reflecting on experience." Key concepts include:

- Learning from direct experience can be more effective if coupled with reflection—that is, the intentional attempt to synthesize, abstract, and articulate the key lessons taught by experience.
- Reflecting on what has been learned makes experience more productive.
- Reflection builds one's confidence in the ability to achieve a goal (i.e., self-efficacy), which in turn translates into higher rates of learning.

## AUTHOR ABSTRACT

Research on learning has primarily focused on the role of doing (experience) in fostering progress over time. In this paper, we propose that one of the critical components of learning is reflection, or the intentional attempt to synthesize, abstract, and articulate the key lessons taught by experience. Drawing on dual-process theory, we focus on the reflective dimension of the learning process and propose that learning can be augmented by deliberately focusing on thinking about what one has been doing. We test the resulting dual-process learning model experimentally, using a mixed-method design that combines two laboratory experiments

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with a field experiment conducted in a large business process outsourcing company in India. We find a performance differential when comparing learning-by-doing alone to learning-by-doing coupled with reflection. Further, we hypothesize and find that the effect of reflection on learning is mediated by greater perceived self-efficacy. Together, our results shed light on the role of reflection as a powerful mechanism behind learning.



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