How You Practice Matters for Learning a Skill Quickly

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Practice alone doesn't make perfect, but learning can be optimized if you practice in the right way, according to new research based on online gaming data from more than 850,000 people.

The research, led by psychological scientist Tom Stafford of the University of Sheffield (UK), suggests that the way you practice is just as important as how often you practice when it comes to learning quickly.

The new findings are published in *Psychological Science*, a journal of the Association for Psychological Science.

Stafford and Michael Dewar from The New York Times Research and Development Lab analyzed data from 854,064 people playing an online game called *Axon*. Players are tasked with guiding a neuron from connection to connection by clicking on potential targets, testing participants' ability to perceive, make decisions, and move quickly.

Stafford and Dewar were interested to know how practice affected players' subsequent performance in the game.

Some *Axon* players achieved higher scores than others despite practicing for the same amount of time. Game play data revealed that those players who seemed to learn more quickly had either spaced out their practice or had more variable early performance — suggesting they were exploring how the game works — before going on to perform better.

"The study suggests that learning can be improved — you can learn more efficiently or use the same practice time to learn to a higher level," says Stafford. "As we live longer, and as more of our lives become based around acquiring complex skills, optimal learning becomes increasingly relevant to everyone."

Using data collected from people playing games offers a new way for researchers to study learning, and has strong advantages compared to research on learning that is based in the lab. Game data provide insight into a real skill that people presumably enjoy practicing, and detailed data regarding all actions that players take as they learn to play are easily recorded.

"This kind of data affords us to look in an unprecedented way at the shape of the learning curve, allowing us to explore how the way we practice helps or hinders learning," says Stafford.

Stafford hopes to collaborate with game designers to further investigate the factors that shape optimal learning.