Analysing Big Data to Understand Learning

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I have access to large existing data sets which contain the potential to show skill development on real-world tasks for large numbers of people (i.e. n>1,000,000 in domains of chess and online video games). Using theory from the cognitive science of learning and advanced statistical models we will test theories of what makes learning most effective. The ambition will be to design more effective learning practices. You will finish this PhD with a deep understanding of the psychology of learning and a skill set encompassing state-of-the-art open-source analytics tools.

Limitations in the study of learning
An idea!
n=854064
Not just data...need theory
Practice: amount
"at least 10,000 hours of dedicated practice (about 6 years of playing chess 5 hours a day) are required to attain the highest levels of performance" (Kahneman, 2011, p238).

The “Ten Thousand Hours Rule”

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Expert
Lots more to do

Does it matter *how* you practice?
- spacing? variability? exploration?

Can we predict the level of skill someone will eventually acquire?
- How? How soon?

How to escape plateaux in learning?
We’re going to do it the right way
Skill learning in an online game

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Description: Data from the game Axon and analysis code. See Stafford, T. & Dewar, M. (2014). Tracing the trajectory of skill learning with a very large sample of online game players. Psychological Science, 25(2) 511-518. and Stafford & Haasnoot (in preparation)

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