NOTE: The attached record is a presentation created by an outside third-party and provided to the National Security Commission on Artificial Intelligence (NSCAI) to complement an outside engagement. The record and its contents were not created, drafted, or developed by NSCAI and does not reflect the views or recommendations of NSCAI.

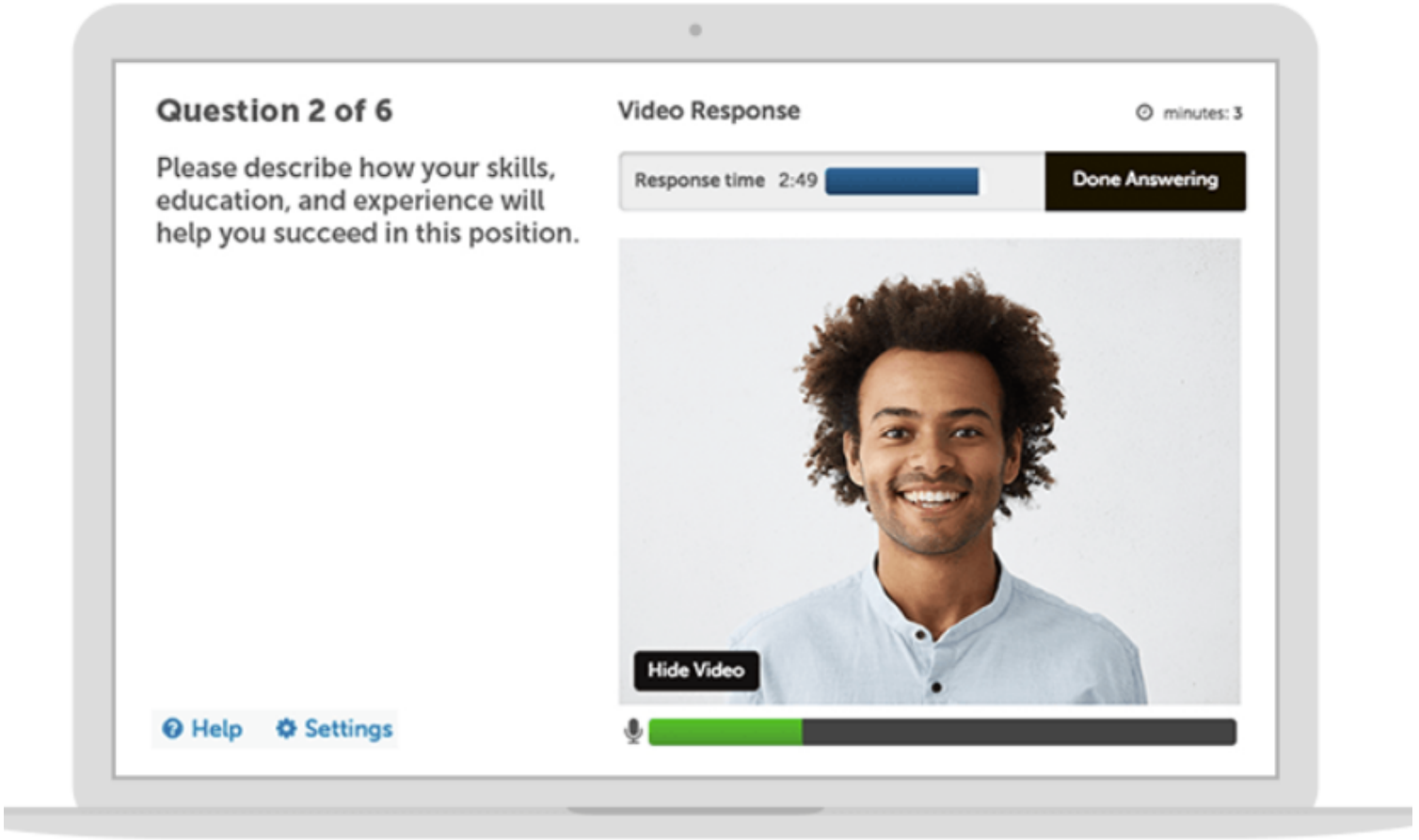
How can psychology and AI together help prepare an AI-enabled workforce?

- **Goal 1: Develop and hire AI talent.**
  - Identify relevant skills through *work analysis*
  - Measure those skills with *valid and reliable* assessments
  - Develop effective *performance management* systems

- **Goal 2**: **Combine psychology and AI to accomplish goals. For example:**
  - Video interviews
  - Behavior tracking/monitoring
  - Human/AI teams

Example 1: Video interviews

- Video interviews can be AI-based such that facial expressions, tone of voice, responses, and other signals are analyzed to build dynamic predictive models
- Current vendors include HireVue, SparkHire, others

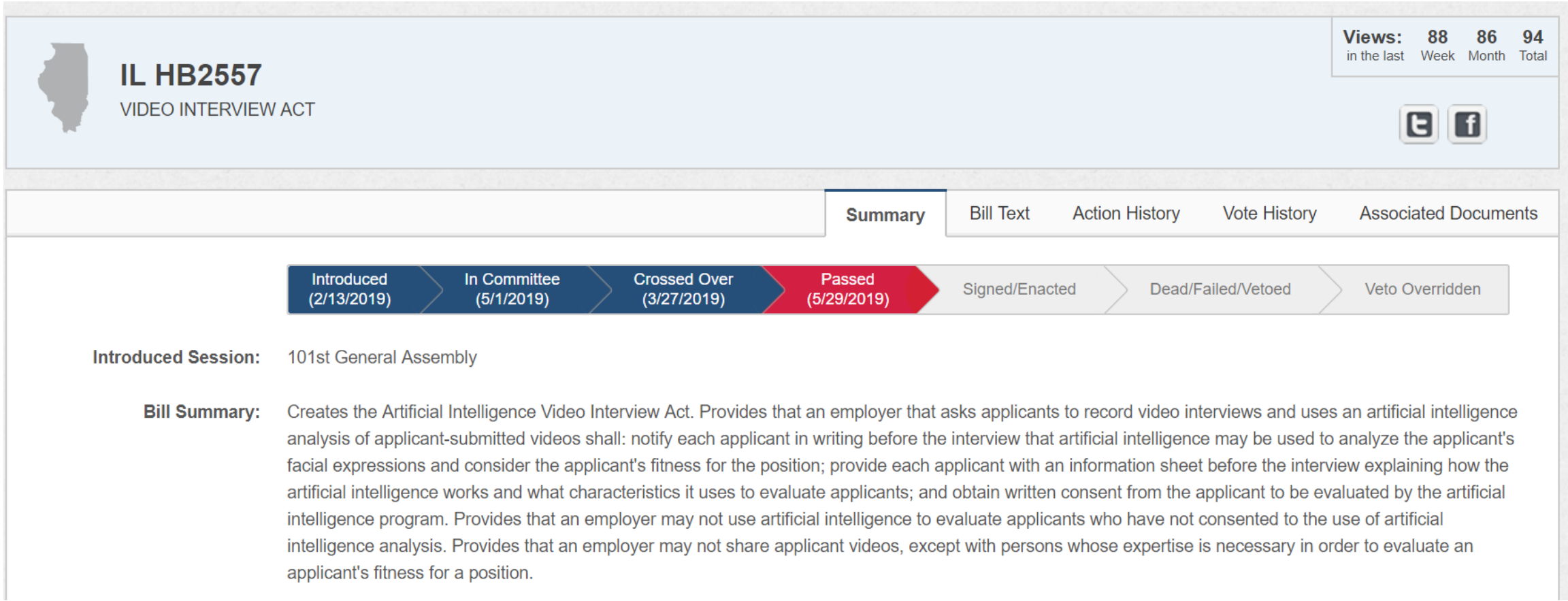


Challenges

- Uniform Guidelines on Employee Selection (EEOC)
- APA Standards for Educational and Psychological Testing (2014) requires that all assessments should have
  - Reliability
  - Validity
  - Fairness

- Practically, reducing time-to-hire is as important as making good decisions

Challenges include fear about bias



IL HB2557

VIDEO INTERVIEW ACT

Views: in the last 88 Week 86 Month 94 Total

Summary | Bill Text | Action History | Vote History | Associated Documents

Introduced (2/13/2019) → In Committee (5/1/2019) → Crossed Over (3/27/2019) → Passed (5/29/2019) → Signed/Enacted → Dead/Failed/Vetoed → Veto Overridden

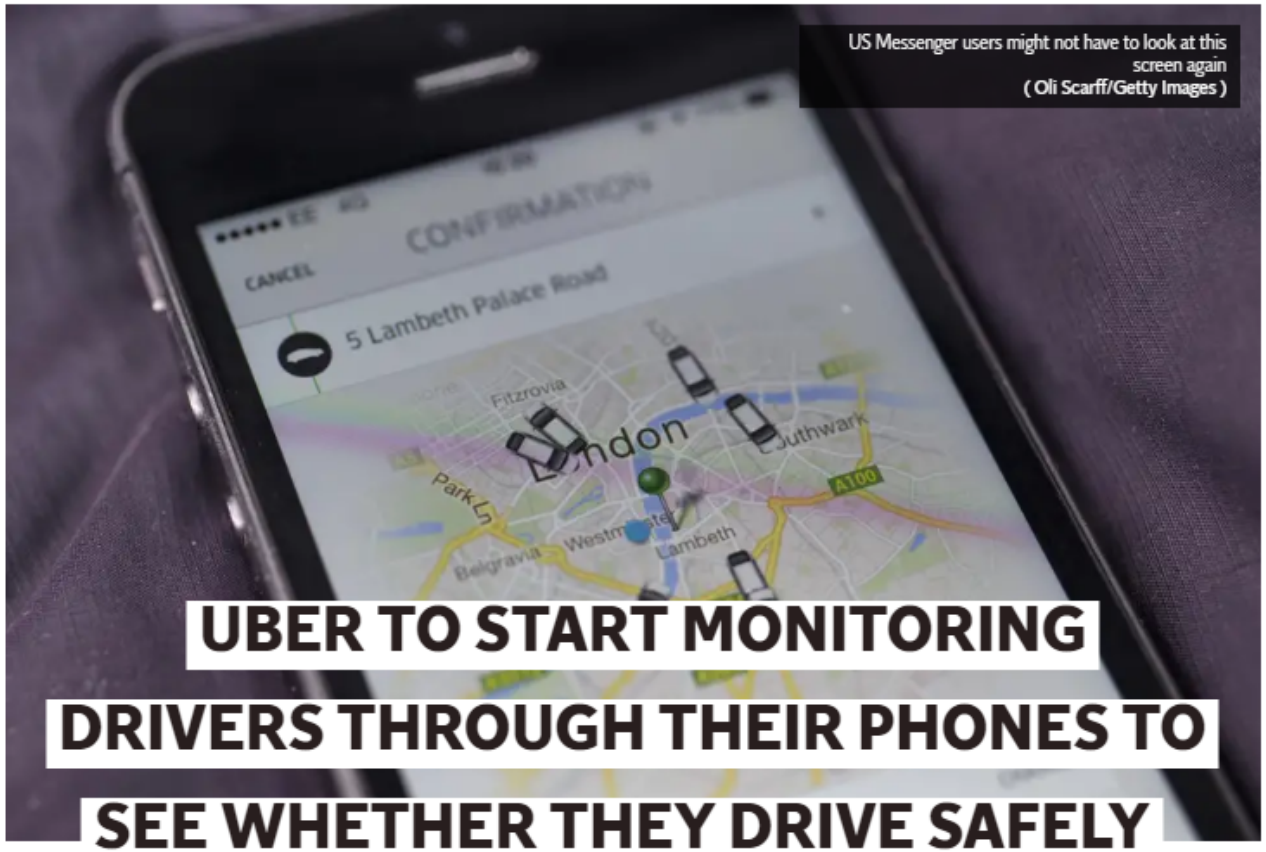
Introduced Session: 101st General Assembly

Bill Summary: Creates the Artificial Intelligence Video Interview Act. Provides that an employer that asks applicants to record video interviews and uses an artificial intelligence analysis of applicant-submitted videos shall: notify each applicant in writing before the interview that artificial intelligence may be used to analyze the applicant's facial expressions and consider the applicant's fitness for the position; provide each applicant with an information sheet before the interview explaining how the artificial intelligence works and what characteristics it uses to evaluate applicants; and obtain written consent from the applicant to be evaluated by the artificial intelligence program. Provides that an employer may not use artificial intelligence to evaluate applicants who have not consented to the use of artificial intelligence analysis. Provides that an employer may not share applicant videos, except with persons whose expertise is necessary in order to evaluate an applicant's fitness for a position.

Research Insights: AI in Hiring and Selection

- Algorithmic combination of predictor variables is superior to clinical ("human") combination (Meehl, 1954)
- People are happy to rely on AI advice in many cases, but not when they think they are experts (Logg et al 2019)
- Introducing variation in assessment medium between candidates is not a good idea (Blacksmith, Willford, Behrend, 2016)
- "Algorithmic bias" is a misnomer. Frequently the criterion (job performance measure) is where bias is located.
- **Bottom line: AI will outperform human judges. Candidates will probably accept it. Hiring managers probably won't. Any tool should only be used when its validity can be demonstrated—must measure things that are job-related.**

Example 2: Electronic performance management (EPM)



The company will use the data to decide arguments between riders and drivers, it says

Hacks rebel after bosses secretly install motion sensors under desks

Well done, thanks for giving PHBs everywhere a great idea for 2016

By Iain Thomson in San Francisco 12 Jan 2016 at 01:13 147 SHARE ▼

Eye spy OccupEye ... How the sensor box can be fitted to a desk

Staff at one of Britain's oldest national newspapers got a shock on Monday morning when they found monitoring sensors installed under their desks.

The boxes, sold by OccupEye as a way to monitor how long staff are at their desks without relying "on coffee cups and coats on chairs," were installed in the offices of *The Daily Telegraph*. Staff weren't told anything [illegible]stallation and soon kicked up a storm of protest.

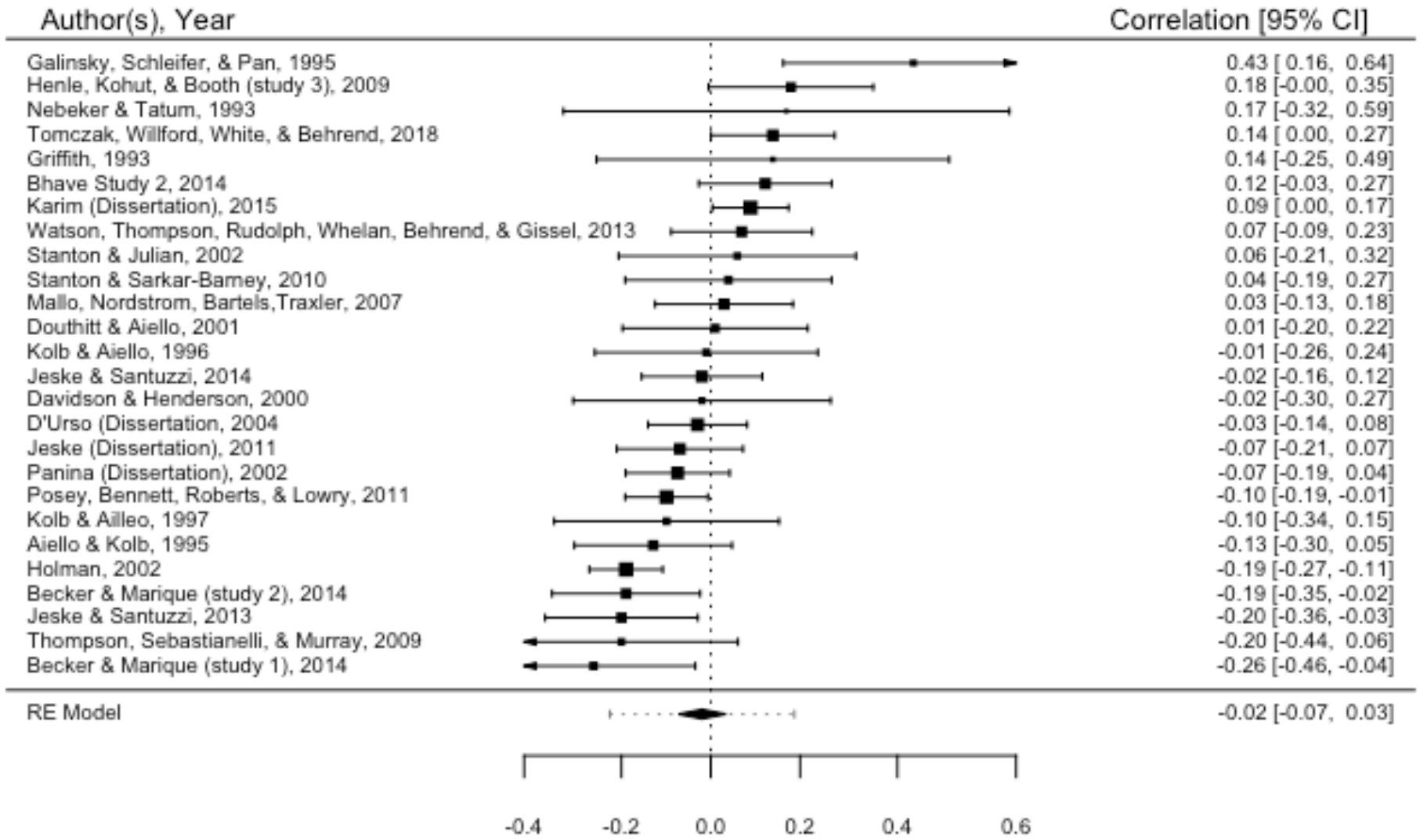
Consequences of data collection/AI on behavior

- People will optimize their behavior toward any goal that they become aware of.
  - Example: News coverage that people who “liked” curly fries on their facebook profile were smarter. Everyone who heard the story immediately went and “liked” curly fries. The correlation then disappeared.
- Choosing to measure something sends a message that it is important. The rules are changed.
  - Example: Fitbits drive behavior but also redefine “fitness.”
- Goal-setting research is psychology is clear that goals are motivating but also narrow one’s focus, at a cost

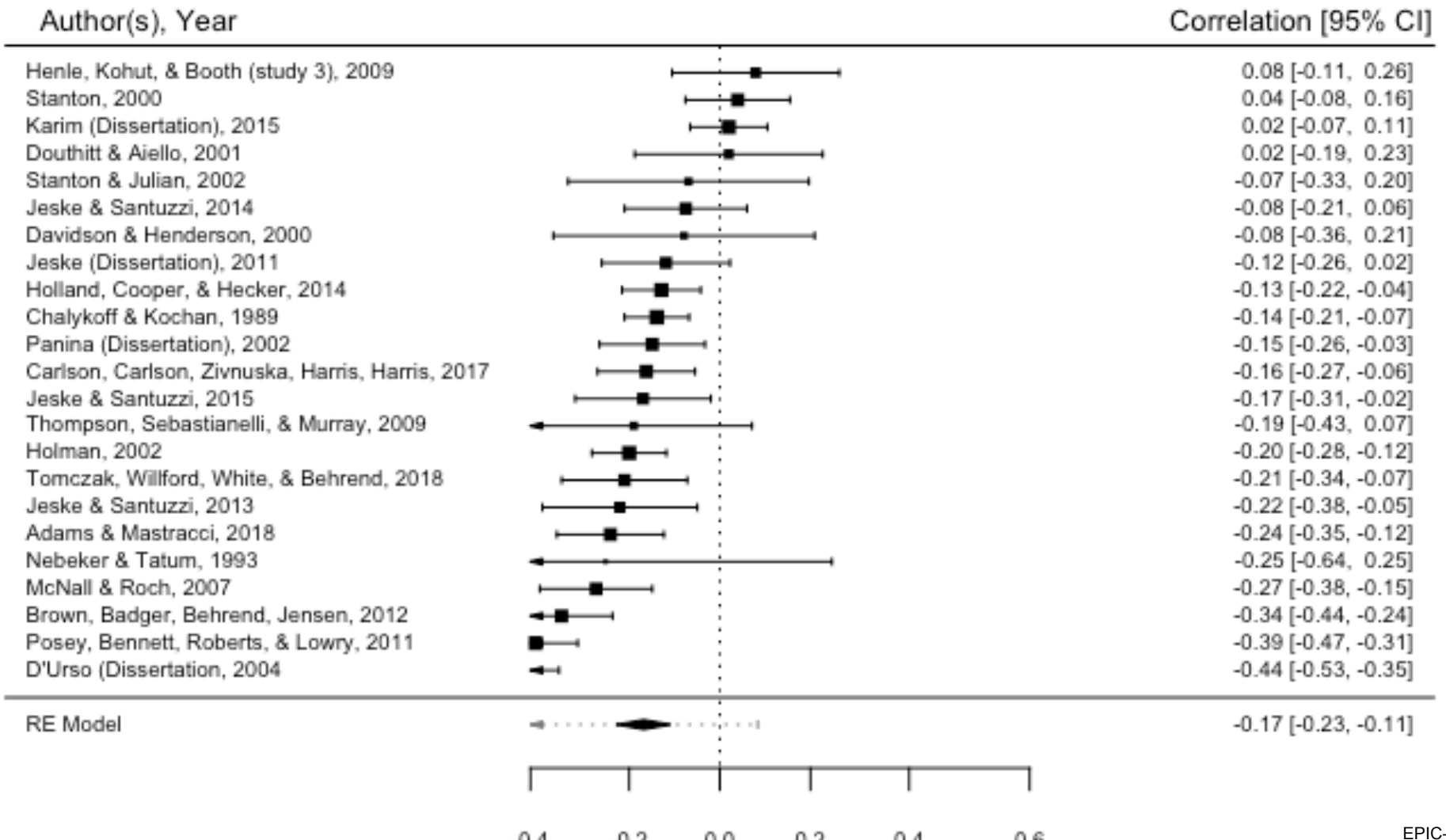
Descriptive vs Prescriptive Data Collection

- Devices like sociometers can be used to train AI about effective communication, but what works in one setting may be harmful n another

Effects of Electronic Monitoring on Work Performance



Effects of Electronic Monitoring on Job Attitudes



Consequences of data collection/AI on behavior

- Fears about ubiquitous surveillance/privacy/psychological targeting
- Reactance: when people's autonomy is restricted they will seek to reassert it by finding ways to act out that aren't constrained
  - E.G., Uber drivers at National Airport
- Mistrust of algorithmic decision making: people want to believe that human judgment is fairer and more accurate, but it is not
- **Bottom line: Measuring behaviors will always change those same behaviors. Must consider rationale, consequences, and effects on models.**

Other issues requiring psychology expertise

- Training, Development, and Education to support human/AI teams
  - Developing both "taskwork" and "teamwork" skills
  - Avoiding automation surprise (e.g., Boeing)
- Building trust
  - Communication, procedural justice, reactance, psychological contracts/expectations

Suggested Readings

- Yost, A. B., Behrend, T. S., Howardson, G., Darrow, J. B., & Jensen, J. M. 2018. Reactance to electronic surveillance: A test of antecedents and outcomes. *Journal of Business and Psychology*, 34: 1-16.
- Blacksmith, N., Willford, J. C., & Behrend, T. S. (2016). Technology in the employment interview: A meta-analysis and future research agenda. *Personnel Assessment and Decisions*, *2*(1), 2
- Logg, J. M., Minson, J. A., & Moore, D. A. (2019). Algorithm appreciation: People prefer algorithmic to human judgment. *Organizational Behavior and Human Decision Processes*, *151*, 90-103.
- Meehl, P. E. (1954). Clinical versus statistical prediction: A theoretical analysis and a review of the evidence.
- American Educational Research Association, American Psychological Association, National Council on Measurement in Education, Joint Committee on Standards for Educational, & Psychological Testing (US). (2014). *Standards for educational and psychological testing*. Amer Educational Research Assn.
- Onnela, J. P., Waber, B. N., Pentland, A., Schnorf, S., & Lazer, D. (2014). Using sociometers to quantify social interaction patterns. *Scientific reports*, *4*, 5604.