

Strategic Technology and Innovation Management Programme 2018

Wearable technologies as smart learning enablers to bridge the skill gap

Dr Thomas Bohné
(tmb35@cam.ac.uk)

Prof Tim Minshall,
Flora Lippert, Jon
Toft, Lukas Hysky,
Andreas Leubner,
Ben Proyer, Elias
Bedmar

Lack of skills is a major challenge for industry. Wearable technologies (e.g. AR/VR, haptic gloves) promise new and potentially effective training solutions. However, there is a lack of research assessing the true performance effects of wearable technologies on human work in specific industrial applications. The aim of this project is to help companies to address this gap.



Aims

Our team set out to

- collaborate with industry partners
- identify suitable technologies and industrial work contexts for this project
- design experiments to test performance effects

Progress

Throughout the year, we carried out three experiments

- **Experiment 1:** Artificial assembly task; VR, hand tracking and video technologies; 67 participants
- **Experiment 2:** Artificial assembly tasks with different complexities; VR and video technologies; 172 participants
- **Experiment 3:** Real assembly task; paper manual, VR and haptic gloves; 240 participants

Deliverables

Based on the three experiments, we found

- Learning retention effects with VR training
- No immediate productivity or quality improvement effects as a result of the VR or haptic gloves training
- VR-based training seems to achieve similar outcomes as traditional training approaches (e.g. paper manual, video), but offers new opportunities (e.g. remote training, immersion, data, less downtime for machinery, less material waste, etc.)

Research opportunities

There is considerable interest from industry in this topic, many unanswered questions remain, and there seem to be several opportunities for future research.

Please contact **Thomas Bohné** if you are interested in being part of future research projects.