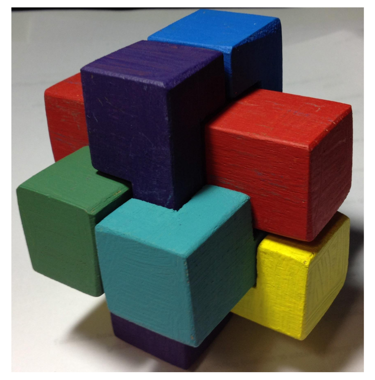
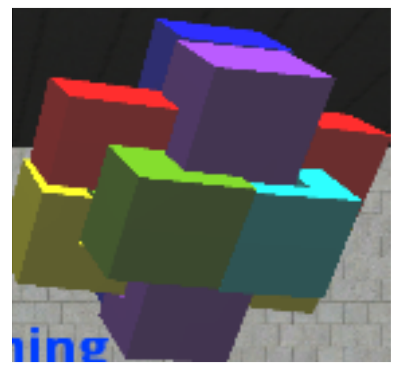




A Hybrid Method to Support Natural Interaction of Parts in a Virtual Environment

Anicia Peters, Patrick Carlson, Stephen Gilbert, and Judy M. Vance

Introduction

Training assembly workers is sometimes expensive because the assembly line needs to be shut down. There is an opportunity to reduce training costs of workers through the use of virtual reality technology. We are testing whether a virtual training session yields the same learning transfer as training with actual physical products.

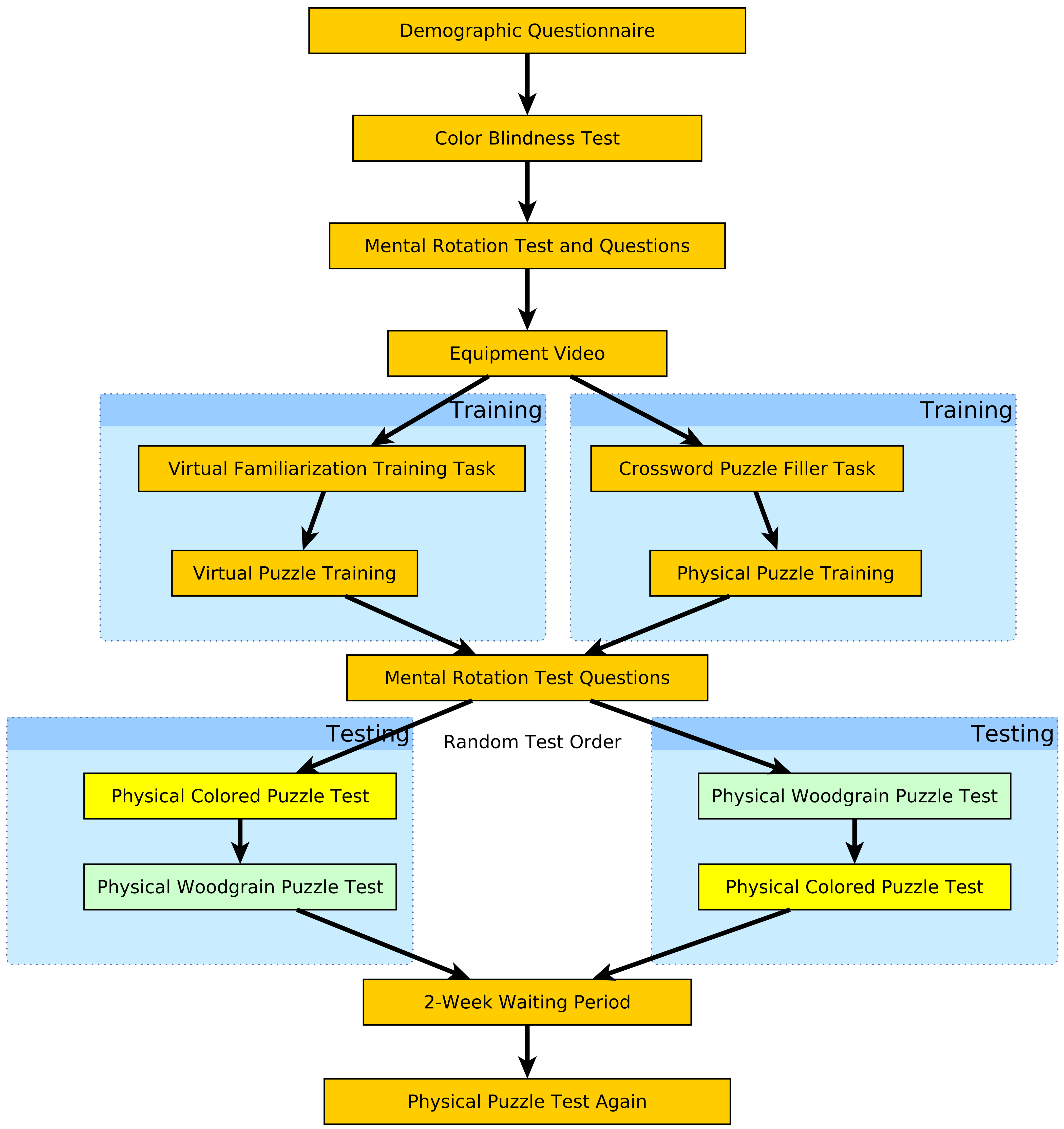
Research Objective

Our research objective is to compare learning transfer between virtual and traditional training with physical parts.

Training Environment

Figure: Physical Training

Research Design



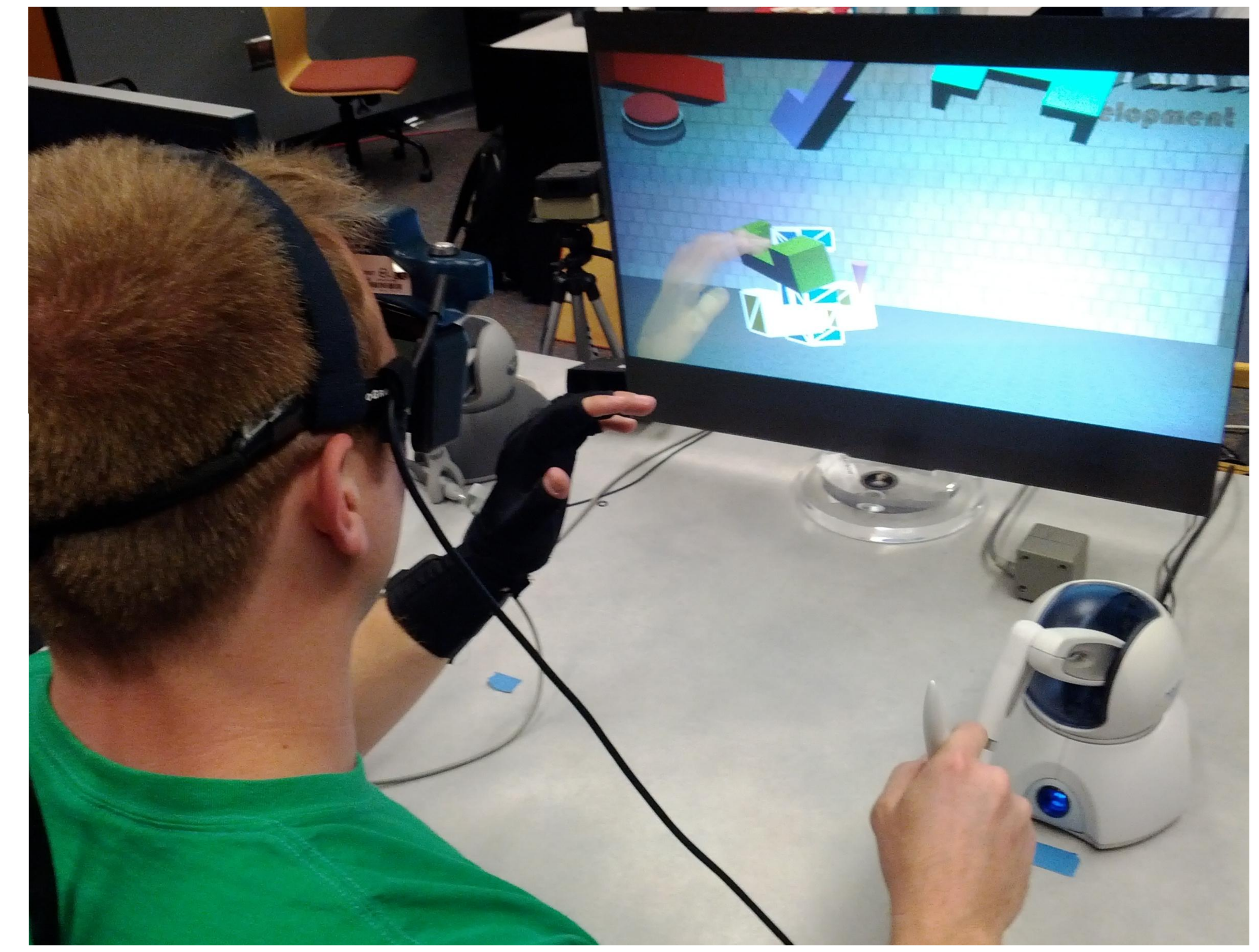


Figure: Virtual Training
5DT Glove
Active Stereo Glasses with Head-Tracking
Stereoscopic Display
Phantom Omni Haptic Device

Expected Results

Our pilot study demonstrated that virtual training took much longer, but the task time for the final test (completing the assembly with the real-world parts) was faster. Our research design has changed to take into account the time differences in training as well as other factors such as color as a differentiator. We expect a similar rate of learning transfer for both environments.

Conclusion

If our expected result is true, this has significant implications for using virtual training in assembly environments.

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