**2020 ATDKC Excellence in Practice Awards**

**Category: Learning Technology**

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| **Honeywell FM&T’s Use of 3D PDFs** |
| **Challenge:**  |
| Honeywell manages the Kansas City National Security Campus (KCNSC) in Kansas City, MO for the U.S. Department of Energy’s Kansas City National Security Administration (NNSA). The campus is an advanced manufacturing, engineering, and supply chain center and manufactures all of the non-nuclear components for the U.S. nuclear stockpile. Honeywell employs operators who build a wide variety of assemblies in the factory. Each department has unique assemblies requiring different knowledge and skill. Due to the large number of new products built at the KCNSC, it is imperative that operators learn to build these assemblies as quickly as possible. Once an operator has been fully trained on a product, they are designated as “qualified.” Honeywell senior leaders asked the Learning & Development team to design a program that would decrease operator qualification time by 25% in two of the largest departments.  |
| **Action:**  |
| Based on the results of a needs analysis, the Learning & Development team found that: * Engineers train operators when they enter a department
* Training is primarily done through written work instructions. These instructions may have pictures, depending on the engineer.
* If the engineer is unavailable, the operator must wait until the engineer has time to devote to training
* Training is performed on production parts. If an error is made, the part must be scrapped. To design and develop the program, the Learning & Development team:
* Obtained training hardware to replace the production parts. Training hardware is able to be reused.
* Partnered with the Process Engineering to create 3D pdfs, which allows users to orient the part by moving it with their mouse (refer to 3D PDF.mp4)
* Partnered with the Digitized Factory department to create work instructions using their Virtually Enhanced Guidance Application (VEGA), which allows users to view virtual and augmented reality instructions (refer to VEGA.mp4)
* Obtained volunteer operators to help new operators if they have questions. Also received Engineering and Learning & Development resources to help train new operators.
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| **Result:**  |
| After pilot testing, Learning & Development successfully implemented the Virtual/Augmented Reality training program. The following results were observed: * Operator qualification time was reduced by 36%, exceeding the original goal by 11%
* In focus groups, 100% of operators stated that the training program was effective
* Senior leadership observed a demonstration of the training and requested the work instructions be deployed plant-wide
* Operators were assessed on their assemblies by qualified inspectors. If errors are made when building an assembly, the inspector rejects it, then sends feedback to the operator. The operator must then fix the error. This process mirrors the quality process followed in the factory.
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