



## **Status Report**

### **Shipyard Orientation Program**

### **Agreement # 2012-405**

Approved for public release; distribution is unlimited.

***April 30, 2012***

#### **Project Overview**

This R&D project, funded by NSRP, examines the engagement and learner interest fostered through using a 3D virtual shipyard in delivering what is often dry new employee orientation subjects. Learners “fly-through” this virtual shipyard, learning highly useful 3D visualization tools (Navisworks) as they are exposed to core orientation subjects. Content is delivered via an on-line 24x7 educational content delivery program (D2L) offered through the University of Wisconsin-Marquette.

#### **Technical Status**

- The Shipyard Orientation course has been completed with the course meeting or exceeding expectations. The course is engaging and informative, leading learners to relevant topics in a more interactive manner than lecture or print materials.
- Topics covered include the following:
  - 1) Confined Spaces
  - 2) Weld Flash
  - 3) The Safety Office
  - 4) Quality Control – Quality Assurance
  - 5) Cranes, Trains and Crushing Objects
  - 6) Material Flow
  - 7) Basic Terminology
  - 8) Environmental Compliance
  - 9) Ergonomic Issues
- D2L directs learners to a virtual 3D shipyard, where they walk or fly to various structured learning activities. The exposure to safety issues, terminology and the layout of a representative shipyard is done in an engaging environment. Learners are encouraged to explore this environment and seek answers to their questions on-line. They also learn about workflow in the manufacturing process, but in a 3D engaging way.
- The Navisworks Freedom software is in use in shipyards throughout the US, and learners gain not only an understanding of the key orientation subjects but hands on skills identifying part properties within a shipbuilding software. The learner can highlight an item, select it and reveal its properties.
- Learners *visually* see the link between materials stock in the yard, which they can click on in the 3D environment, to the Bill of Materials. to where it is used on the vessel being built.
- The learner is led into activities for learning the concepts. Each activity provides access to pages with resources, videos and other interactive exercises for engaging with the material to learn the concepts. Additional content outside the D2L environment is accessible through external “Hotlinks” that provide another avenue for learners to explore.
- Navigation inside the program is fully trackable and reportable to employers who send employees through the course. A small glitch remains in making the external links connect from within the fly-through environment instead of by typing them in. Since the external links remain outside the D2L

system, they are not trackable the way the developed D2L course content is.

- For each set of activities, there are 2 types of assessment: a self-assessment and a quiz. For the self-assessments, learners rate their own proficiency for a set of criteria. For the quizzes, learners are graded on 3 true/false and 2 multiple choice questions per topic. Learners may take a quiz up to 3 times. The D2L program keeps track of the number of attempts and scores for each quiz. The shipyard can receive reports on the learner grades, time spent on activities, and the number of attempts at each quiz.
- When the learner takes the quizzes, responses are integrated into the program to follow each answer to challenge erroneous thinking and to help the learner discover the correct answers. Thus, the quizzes themselves become not only assessment tools but learning tools as well.
- The project remains in the testing phase, which has been extended through April 30.
- A total of six tester user ids and passwords have been issued, three to experienced and three to novice users—one each to MMC, Ingalls, Burger Boat, a freelance writer in the industry, a local technical college program dean, and an art student. Additional testers have been sought, but none have been identified. At the time of this report, one tester has completed and evaluated the program.
- The size of the Navisworks Freedom download and the 2Gb Ram required to run it may impact those learners with older computer equipment.
- UW-Marinette is capable of issuing batches of user ids and passwords for shipyards seeking access to the course for new employees. UW-Marinette is currently developing a means for individual, fee-for-access entry to the program.
- With some additional time modeling with the 3D shipyard, a far wider and richer learning environment could be achieved, potentially incorporating welding, Quality Control, and Naval Architecture topics, among others.
- The final report is on target to be submitted April 30, 2012.

### **Schedule**

The deliverables associated with this project are complete. The ECB approved a 2-month no-cost extension to allow the team to provide their final technology transfer at the Joint Panel Meeting in May, 2012.

### **Business Status**

- The project has been challenged with changes to project representation by all partner organizations, first at UW-Marinette, then at MMC, and most recently at ShipConstructor Software, where a replacement representative to this project remains to be identified. Despite these setbacks in personnel turnover, the project is completing on schedule.