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Transport Security: Continuous Learning and Engagement via Learning Management System

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Abstract

Learning should not be a one-time experience. Learning should be continuous to allow for retention, recall and application. To ensure that learning is a continuous process and that learners have access to a learning experience when it is convenient for them, the Transportation Security Program (TSP) at Oak Ridge National Laboratory (ORNL) has created an avenue that allows learners in partner countries to engage in the learning process before and after the classroom course. This avenue is driven by the global Agile eXpert Instructional System (gAXIS) Learning Management System (LMS). gAXIS provides an engaging learning experience and also has over 100 language packs available for download and implementation. This allows learners in partner countries to update their user interface to their preferred language.

Introduction

Learning experiences normally are put into three categories: classroom learning, blended learning, and eLearning. For the benefit of the Transport Security programs at ORNL, we have implemented all three categories of learning. Classroom workshops are offered in multiple countries. This can include classroom instruction and table-top exercises. In order to enhance learning and to continue engaged relationships with partner countries, ORNL's TSP introduced gAXIS in September 2015. This has proven to be a great resource in creating learning experiences and

continuing engagements with countries after the classroom workshops are completed.

Creating a Habit Through Learning Experiences

Learning happens in multiple settings. For example, on-the-job training is credited for 80% of adult learning. This can provide good results or bad results. If on-the-job learning is the only route to a learning experience, the learner will only experience that process. If that process is taught incorrectly during on-the-job training, then the learner will need to be re-taught (or relearn) the correct process. Thus, teaching the correct process in a formalized learning program and then experiencing the process through on-the-job learning is more suited to success (Duhigg, 2012).

Learning, for purposes of this paper and the TSP, is defined through the ability to learn, retain, recall and apply. The learner will be more successful if they are taught the correct process and theory first before any practical applications. It is much easier to teach the correct process first rather than the learner learning an incorrect process and then having to relearn the correct process. This process is referred as recreating a habit.

Habits can be used to the benefit or the demise of people. Habits are created in a three-phase loop: cue, routine and reward. Many organizations and professions intentionally create habits for organizational benefit. For example, marketing companies create a craving using the same process, thus resulting in sales and profits. Commercials create a cue which is the craving for the product. As a result, the consumer purchases the product (routine) and the company sees profits increase (rewards).

Learning is not the exception to the cycle of habit. Learning experiences have proven to create positive habits by targeting the routine phase. Comparing classroom instruction, blended learning, and eLearning, the latter two have proven to be most effective. Blended learning and eLearning experiences allow the learner to progress at their preferred pace and allows the learner to repeat the learning experience as many times as needed, therefore, creating the portability of retention,

recall and application (Duhigg, 2012).

Advantages and Disadvantages of eLearning

The advantages and disadvantages of e-learning vary depending on program goals, the intended target audience and the organizational infrastructure, technology and culture in the distributed workplace. E-learning acceptance and use is growing as it is now becoming a more palatable form of training delivery. Learning times can be greatly reduced with retention and recall increasing an average of 40 to 60 percent. From a sustainability perspective the increased retention and application to the job averages an increase of 25 percent over traditional methods. The advantages far outweighed the disadvantages, especially in the hybrid training engagement methodology being used by the TSP at ORNL. Implementation decisions that address some of the identified disadvantages such as upfront costs, motivation of learners and restrictions of technology available or capability. The action research afforded by this pilot effort provided valuable insight into how my team can foster that collaborative learning environment, more effectively and efficiently, but most importantly holistically considering the impact to the environment, and the overall well-being of the future learner. The educator plays a crucial role as a leader, and steward for the future (Hall, 1997).

Learning Engagement

To assist in the process of creating the positive habit in learners, gAXIS has proven to be a successful asset. For example, where once there was only classroom exposure, learners now have access to learning around the clock. This approach assists in the learning, retention, recall and application.

In addition, it also offers an avenue for learners in multiple countries and cultures to complete prerequisites before teams arrive into the partner countries. For example, in Peru, we have an entry level course identified as a prerequisite for participants in a table-top exercises. Many of the participants have little to no experiences in the Transportation Security arena and the eLearning course ensures that they will have a set knowledge base before they participate in the tabletop exercise.

gAXIS for the Learner

For the learner, gAXIS provides a design that is specifically tailored to the learner and the learner only sees what is applicable to them. The system is designed so that it is very easy to use and has a familiar “look and feel” that is quickly and easily adopted by learners reducing the learning curve for the new learner. This is controlled by the access levels and removes any information that is not applicable to the specific learner. gAXIS is accessible 24/7 so learners can learn when they have available time.

In gAXIS, communication is continuous. gAXIS has helpline support for learners who have questions. Learners are encouraged to ask questions and avenues are available for them to receive answers quickly. Discussion boards, emails and dashboard alerts offer the latest functionality allowing learners to communicate with their instructors, peers and system administrators. In addition, gAXIS gives learners an opportunity to quickly contact an instructor if questions arise.

gAXIS fosters collaborative learning by allowing learners to learn together in a synchronous or asynchronous learning atmosphere. This approach allows learners to work in teams to produce a final product.

gAXIS for the Instructor

gAXIS offers flexibility for the instructor in that it allows the instruction to be ever present in the class, regardless of where they are physically located. The mobile capabilities of gAXIS allow the instructor to teach the class and monitor activities and questions of the class from any location. Instructors have advanced capabilities at their fingertips with gAXIS. Exam bank monitoring, participant progression and learning paths are just a few of the options available to the instructor.

gAXIS for the System Administrator

Benefits for the gAXIS system administrators are abundant. gAXIS offers a generous list of options for the system administrators which results in a more effective learning experience. For example, learning paths can be created by the system administrators so that learners, instructors, etc. can see the progress of learners or partner countries.

Course design documentation, lesson plans, job aids, factsheets, and training evaluations are readily accessible on the platform and makes it easier to introduce new instructors when necessary to manage the ebb and flow of projects. The ability to provide “at a glance” progress on the learning paths established in conjunction with our Programmatic goals, partner countries and other colleagues at a country or individual level was another key consideration. Given that this endeavor impacts over 80 countries, communication and with over 120 translation packs and the interface to interpreters was part of the down select process. The configuration management, and multiple modalities that the platform offered such as version control, content management, and other cultural considerations pulling in the Geert-Hofstede cultural dimensions were added benefits.

Further, gAXIS provides a platform for measures of effectiveness and maintaining continued dialog with partner countries: Speak to the analytics here. Ease of collecting data on exams, logins, progress through courses, etc.

gAXIS for the Partner Countries

As mentioned earlier, communication is continuous which encourages and allows relationships to build between partner countries and the instructors or subject matter experts (SME). Emails are created so that instructors and SMEs are alerted when a question or comment is posted to a discussion board or other communication avenue. In addition to responding to questions quickly from the partner country, instructors and SMEs can send information quickly to the partner country via gAXIS which allows for a timely response on each side.

In addition to communication, learning paths prove to be an asset when designing learning for partner countries. Learning paths create a customized track for the learner.

An example of a learning path that has been developed for partner countries is listed below.

- Example: Three-phases of learning
 - **Phase 1:** eLearning package – set the knowledge base so that after completing the eLearning package, learners should have an estimated equal knowledge base.
 - **Phase 2:** Workshop(s) - intensity of the face-to-face workshop(s) can be increased because of the increased knowledge base of content.
 - **Phase 3:** Forums - in order to continue relationships with partner countries and ensure that they are provided a “reach-back” opportunity, discussion forums are available via gAXIS.

eLearning content in gAXIS can help train new employees in partner countries quickly and effectively. At times, this type of learning might be necessary due to a partner country having a high turnover rate or having expanded and increased their labor group. This allows learners to train immediately on essential topics and start their job. It eliminates the wait time for a SME to fly to the country to train a small population.

One of the major benefits to the gAXIS system is the capability and functionality of the system and the ease of transporting that functionality to partner countries. As an example, when a partner country reaches sustainability, gAXIS can quickly be installed and configured on the partner country network, avoiding a break in engagement for the learners in the partner country.

User Adoption

gAXIS has been presented in four countries and has been well received in all. See Figure 1 for a summary of the Peruvian participants. As shown below, the class was diverse with various job roles participating.

Job	Number of Participants
Regulator	2
Operator	5
Response Force	2
Other	12 Write-in job roles included: <ul style="list-style-type: none"> ○ RAD Protection Officer – 4 ○ Administrative – 1 ○ Teacher – 1 ○ Trainer – 3 ○ Programmer/Analyst – 1 ○ Tech Transfer – 1 ○ Security Consultant – 1
N/A	4

When asked what the most important aspect of the training was, participants commented having access to an eLearning platform, such as gAXIS, was an opportunity to disseminate training to more people. Additionally, when asked what was most helpful in performing their role, participants reiterated the use of the eLearning platform was effective for delivering training and realized gAXIS could be beneficial for additional training.

Conclusions

To ensure that learners in partner countries are engaged in a continuous learning curriculum, the ORNL Transportation Security Program has implemented gAXIS, a LMS that provides 24/7 access and language packs to optimize the learning experience. gAXIS also is incorporated throughout the training program and maintains record copies of training activities, version control, configuration

management, etc. gAXIS is very cost effective and allows for partner countries to communicate with SMEs wherever they are and when they need to ask questions or post comments. When partner countries reach sustainability, gAXIS and training content can be transferred easily to the partner country networks for their use.

References

Duhigg, C. (2012). *The Power of Habit*. New York, NY: Random House, Inc.

Hall, B. (1997). *Web-based Training Cookbook*. Charlottesville, VA: Wiley.