Human Performance Technology and Instructional Design

Supporting Coast Guard Mission Readiness

LT BRETT GARY
INTRO TO THE COAST GUARD
A Day in the Coast Guard

Conducts 48 Search & rescue cases
Saves over $132,000 in property
Saves 9 lives & Assists 73 people in distress

Services 134 buoys & fixed aids to navigation
Interdicts 6 illegal migrants
Seizes 297 pounds of marijuana & 549 pounds of cocaine worth $8.2 million

Conducts 24 security boardings in & around U.S. ports
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Force Readiness Command
Video Introduction
Performance Technology Center

PTC Vision

To improve CG workforce performance through developing innovative analysis driven performance support solutions to increase mission effectiveness.

PTC Missions

We **ANALYZE** performance problems and **DESIGN** performance interventions.

We **HELP** people do their jobs better.

We **LEVERAGE** technology and metrics to **IMPROVE** Coast Guard performance.
Mission

To Provide:

- the **RIGHT** performance solutions
- at the **RIGHT** cost
- to the **RIGHT** people
- at the **RIGHT** location
- at the **RIGHT** time
Performance Technology Center

**Major Processes:**

- Conduct & Consult on HPT Studies
- Occupational Analysis Program
- Acquisitions Program Support
- Training System Staffing Standards
- SOP Ownership and Support
- Tactics, Techniques and Procedures
- Advanced Distributed Learning
  - ADL Product Creation & Contracting Officer Representative duties
  - ADL Policy / Strategy development
- Swaringen Award
A Little Exercise

Think back to your current or last job and write down the biggest thing that kept you from doing your job.
Harless: You know, trainers are forever going around looking for respectability. They’re always asking, “How can we sell management on the idea of training?”

Well, the answer is, you don’t. You sell management on the benefits of solving human performance problems. You make it clear to management that you are there to avoid training when it’s not cost-effective.

That’s how you get to be a hero. That’s how you get to be respectable…That’s how you avoid being stuck in some obscure job.

“Almost always, the client came to us requesting the development of some kind of training intervention… [in a typical situation, the workers] already knew how to detect and correct…defects….They were not doing so because…they were being paid for the quantity of production rather than the quality of the production.”
Performance Factors

- Environment Issues
- Skills / Knowledge
- Motivation / Incentive
- Personnel Selection
Performance Factors
(more robust)

Organizational Factors

- Information
- Resources
- Incentives
- Selection Assignment

Individual Factors

- Knowledge
- Skills
- Motivation
- Capacity
Performance Factors

Organizational Factors

- Information: 75%
- Resources: 75%
- Inducives: 75%
- Selection Assignment: 75%

Individual Factors

- Knowledge: 25%
- Skills: 25%
- Motivation: 25%
- Capacity: 25%
PTC’s Performance Factors Analysis

Performance Factors aka 8 Buttons

- Information: 50%
- Resources: 22%
- Incentives: 10%
- Selection & Assignment: 6%
- Knowledge: 4%
- Skills: 3%
- Motivation: 3%
- Capacity: 2%

N = 115

75% belong to the Organization
25% belong to the Individual
Performance Technology Center Products

Analysis, Acquisition, & Evaluation Branch
- Performance Analysis
- Manpower Requirements Analysis
- Occupational Analysis

Performance Intervention Branch
- e-Learning (ADL)
- EPSS & Apps
  - TTP
  - Job Aids

Implementation & Measurement Branch
- Mandated Training
- Lifecycle Management Distribution
- Evaluation of Intervention Effectiveness

Training Centers
- "A" and "C" Schools
- Job Aids
- TTP
- EPSS & Apps

Programs
- Non-Skills/Knowledge Interventions
- Policy
- Resources
- Incentives
- Assignment Selection
How We Get Work

I need training...

HPT "Performance" Analysis

Non-Training Interventions

Training Interventions

Solutions for Organizational Factors
- Policy / Resources
- TIP / EPSS
- Job Aids

Solutions for Individual Factors
- eLearning / C-schools / SOJT

Information
Selection Assignment
Incentives
Resources

Motivation
Capacity

Knowledge
Skills
Front End Analysis (FEA)

New Performance Planning FEA:
Analyzes performance associated with new starts or to analyze a job that has never had an FEA.
- Example – BOCA
  (Boarding Officer Certified Ashore)

Diagnostic FEA:
Analyzes why a group of people aren’t performing as expected.
- Example- M240 Mounted automatic weapon
Job Task Analysis (JTA)

Identifies the duties and tasks associated with a specific job.

Traditionally used to develop vocational instruction.

Example - MH-60 Pilot
Job Task Analysis (JTA)

JTA Job Aid 1

Job
HC-130J Censor Pallet Maintainer

Duties/Outputs
- Electrical System Maintenance
- Navigation System Maintenance

Duties/Outputs are the accomplishments produced by the job.

Tasks
- Remove power supply.
- Remove transformer.
- Remove static converter.
- Troubleshoot power loss.
- Inspect DF-430 antenna.
- Remove DF-430 antenna.

Tasks are behaviors or actions that are performed to produce the duties/outputs.
Strategic Needs Assessment (SNA)

Examines the external and internal factors that affect performance within the context of an organization's business strategy.

Identifies the gaps between the current and desired conditions.

Example - Small Boat/Helo Hoisting Interface
Training Requirements Analysis (TRA)

Narrows the scope of the analysis to give the client a clear idea of what the performance needs are and what training intervention is best suited to meet those.

Example - Cold Water/Ice Diving
Analysis Process

1. Alignment Meeting
2. Follow-up Alignment Report for Concurrent Clearance
3. Accomplished Performer (AP) Selection
4. NPP/Diagnostic FEA Data Collection Plan
5. Data Collection Effort (on-site visits, Group Systems)
6. Workshops, online surveys, etc.
7. Data Analysis to Produce S/K. ENV, M/I, A/S Interventions
8. FEA Draft Report
9. FEA Out brief
10. Follow-up Action Plan
Electronic Performance Support System

- Self-contained direct task support resource meant to be used when and where you need it, in conjunction with, or in lieu of, training.

- Built to increase productivity, improve task accuracy, and enable performance from day one, with minimal training...
EPSS Suitability

- Complex tasks
- Infrequent tasks
- Insufficient or scattered information resources
- Limited recurring training
- Unreachable audience
- Frequent change
EPSS/Training Comparison Diagram

- Data
- Knowledge
- Task
- Skill

Focuses:
- Training Focus
- Tech Pubs Focus
- EPSS Focus

Heavier Focus:
- Data
- Knowledge
- Task
- Skill
EPSS: 154’ Fast Response Cutter
EPSS Design: Table of Contents

Periodicity: Annually

Tools, Parts, Materials:
1. Safety tag
2. 50' extension cord
3. access security key
4. combination box and open end wrench set
5. borescope

References: MDP 2411 MRC 22 P124 N, (02/22/2012)
**EPSS Design**

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### Reduction Gear Box, PORT Engine Room Panel (3-28-2):


### Reduction Gear Box, STBD Engine Room Panel (3-32-3):


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To perform this procedure use the following steps:

1. **Complete Red Danger Tag-Out** procedures in accordance with Equipment Tag-Out Procedure, COMDTINST 0077.1 (series).

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**WARNING:** Avoid eye contact, skin contact and ingestion of fuel. Wash exposed skin thoroughly after handling. Failure to comply may result in personal injury.
EPSS Design

NOTE: The tab on the end of the cable connector will have to be pulled out twice to fully disconnect the cable.

3. Remove control unit retaining bolts and washers (1).

4. Remove control unit (2) to install new control unit.

5. Reinstall control unit retaining bolt washers and bolts.

6. Tighten retaining bolts. (no torque required)
Design and Development Processes
Design Document

- Learning Objectives
- Instructional Strategy
- Design Flow
- Assessment Strategy
- Evaluation Plan

Performance Intervention Solution Design and Development Process
Performance Intervention Process

**Development**
- Storyboard
- Prototype
- Design Testing (Content Accuracy & ID Principles)
- Technical Testing (Compatibility and Function)
- Accessibility Testing (508)
- Efficacy = Formative Evaluation & User Beta Testing

**Implementation**
- Delivery
- Solution Deployed
Design and Development: Storyboard Example
Implementation and Measurement

Evaluation and Lifecycle Management

- Evaluation Plan Implemented: Archive & Review Periods

Kirkpatrick Levels 1 thru 4

Level 1: Reaction – Post Course Surveys
Level 2: Learning and Performance - Pre & Post Tests
Level 3: Behavior and Impact on Performance – Interviews, Observations, Surveys, etc.
Level 4: Organizational Impact – Data Comparisons Directly Linked to Intervention
Mandated Training
Program Management Office

Mandated Training Reduction Initiative
CG Representative on DHS Chief Learning Officer Council (CLOC) Sub-groups
• Training, Evaluation, and Quality Assurance Group (TEQAG)
• Enterprise eLearning Group (EEG)
• LMS Tiger Team

Product Distribution & Life Cycle Management

Performance Analysis Library
Learning Management System
Electronic Performance Support System Catalog
Tactics, Techniques, and Procedures Library
Project Highlights

Customer: Coast Guard Fast Response Cutter (FRC) engineering crews & maintenance augmentation teams (MATs)
Stakeholders: Office of Surface Acquisition (CG-924), Office of Naval Engineering (CG-451), & Surface Forces Logistics Center (SFLC)
Situation: The results of the 2013 FRC Performance Support and Training Evaluation (PS & T) concluded that the Coast Guard would have PS & T more efficiently and economically to the FRC crews than factory training.
Solution: Bring the resources to the engineers! The Performance Technology Center (PTC) created a low-cost Electronic Performance Support System (EPSS) to solve the problem. Designed for use on a ruggedized mobile device, but also available via CD-ROM or hardcopy, the EPSS takes engineers step-by-step through each task associated with the operation, maintenance, troubleshooting, and repair of 15 engineering systems using real-life pictures, videos, and tips from Coast Guard accomplished performers to guide them through the process.
Success: Due to the procedural support afforded by the EPSS, FRC crews completed 26,300 patrol hours in FY16, executing ports, waterways, and coastal security (PWS CS), fishery, search and rescue, and national defense patrols in support of the Commandant’s Western Hemisphere Strategy. Commercially valued at $4.4 million, PTC developed the EPSS in 1.5 years for $44,000.

Customer: Coast Guard Minotaur System Operators (MSOs)
Stakeholders: Office of Acquisitions Directorate (CG-931) and Aviation Forces (CG-711)
Situation: The Coast Guard planned to install the Minotaur system in each fixed wing aircraft to upgrade mission system controls, the first step towards integrating a Coast Guard version of the Minotaur system into the HC-130J, C-27J, and HC-144 aircrafts. Formal training plans for the Minotaur system had not been previously developed and as a result, FDICECOM, via CG-931 and CG-711, sought help to determine the requirements needed to train personnel to perform as MSOs.
Solution: Analyzed interviews and observed personnel at Naval Air Station FXR River and interviewed personnel from the Aviation Training Center to identify the major accomplishments, tasks, and steps for performance as a MSO. A blended scenario-based training delivery method was recommended, which included an appropriate mix of aircraft introduction, classroom instruction, and use of a simulator. Scenario-based training gives the operator experience with live operations while allowing for immediate feedback from instructors with real-world experience.
Project Highlights

Inspected Towing Vessel Decision Aid: Application

Customer: Coast Guard uniform personnel as well as civilian inspectors; inspected towing vessel owners and operators pre-inspecting their vessels.

Stakeholders: Office of Commercial Vessel Compliance (CG-CVC) and Towing Vessel National Center Of Expertise (TVNCOE).

Situation: Under 46 CFR subchapter M, approximately 6000 towing vessels (a 51% increase to vessels subject to inspection) will undergo an initial inspection during a four year phase-in period between 2016 and 2022 and each inspected vessel will also require an annual inspection each year thereafter. Currently, inspections are handled through a variety of paper checklists and accompanying rules and reference manuals in book form. Inspections can take upwards of eight (8) hours, and if the vessel fails inspection the inspector(s) have to return and re-inspect the vessel.

Solution: Collaborating with CG-CVC and the TVNCOE, the Performance Technology Center developed a decision aid using the latest web technologies. Designed for use on any web enabled device, this tool maximizes efficiency by dynamically generating an inspection checklist specific to a given vessel, thus greatly reducing preparation time and virtually eliminating errors in application of regulations. Additionally, the comprehensive tool can be used by industry to proactively identify and address issues prior to an inspection, thereby minimizing the number of times an inspector must re-visit a vessel.

Success: Considering the time, personnel, and money resources expended by the Coast Guard and towing vessel industry during each inspection, use of this application saves thousands of dollars and thousands of personnel resource hours. Furthermore, the tool is being tested as part of the Mobile Computing Integrated Product Team (IPIT) charter, opening the door for this decision aid to be made available to Marine Inspectors using mobile devices during inspections.
Challenges

- Governance Across Geographically Dispersed Pockets of Performance Improvement Practice
- Building Consistency with Quality & Efficiency
- Creating a Cohesive Community of Practice
- Fostering Creativity & Innovation
- Cyber Challenges (Win 10, CG-6 & IT/PMO Restrictions)
How to Achieve Success!

- Focus on Results
- Take a Systemic View
- Add Value
- Work in Partnership
Human Performance Technology Advocacy

How We Do It:

Swaringen (mentor) Award

Professional Organizations
- International Society for Performance Improvement (ISPI)
- Inter-service/Industry Training, Simulation and Education Conference (I/ITSEC)
- Association for Talent Development (ATD)

External Liaison
- United States Agency for International Development (USAID)
- Federal Protection Service
- Interagency Training Resource Organization (ITRO)
- Naval Warfare Development Command (NWDC)
- Air, Land, and Sea Applications (ALSA)
- National Aeronautics and Space Administration
IU IST Grads Coast Guard

1991: Marvin Brian, Captain – Retired
1996: D. Kalnback Chief – Retired
1998: Mr. Timothy Quiram – FORCENCOM Training Deputy Chief
1999: Andrea Marcille, Captain – Retired
2000: Mr. Scott Stewart – Performance Technology Center ADL Specialist
2001: Peter Seaman, LCDR – Retired
2002: Charles Fosse, Captain – Coast Guard Personnel Service Center, Enlisted Personnel Management
2003: Matt Smith, Commander - Retired
2003: E. Tyson, Lieutenant Commander– Retired
2004: Richter Tipton, Captain – FORCENCOM Training Chief
2005: Patrick McMahon, Commander – Retired
2006: Timothy Hammond, Commander – Commanding Officer Coast Guard Cutter Confidence
2007: Mark Planitz, Master Chief Petty Officer – Retired
2008: Christopher Brunclik, Lieutenant Commander – FORCENET Training Mission Support
2008: Mr. Doug Craft – Performance Technology Center Analysis Specialist
2009: Michael Reed, Commander – FORCENET Assessment Division
2009: Vanessa Blackmore, Commander – Training Center Petaluma, CA Training Officer
2009: Brent Ferrantelli, Chief Warrant Officer – Retired
2013: Bryan Burkhalter, Commander – FORCENET Performance Technology Center Director
2013: John Suckow, Lieutenant Commander – Sector Los Angeles/Long Beach Response Department
2013: Kipp Rice, Master Chief Petty Officer – Training Center Petaluma Culinary Specialist School Chief
2014: Sean Murray, Lieutenant Commander – Maritime Law Enforcement Academy Training Officer
2014: Laura Salemme, Lieutenant – Retired
2017: Brett Gary, Lieutenant – FORCENET Performance Technology Center
Reflection
Questions?