Captivated by Captology

By Sam S. Adkins

Tunneling through tailored simulation in the workflow.

The word *captology* is derived from the first four initials of the words, Computers As Persuasive Technologies, and it's trickling into the vocabulary of learning professionals, for good reason.

The concepts and principles of captology relate directly to electronic performance improvement, automated change management, and workflow-based e-learning. Dr. B. J. Fogg, director of Stanford's Persuasive Technology Laboratories and the leading proponent of captology, defines persuasion as "an attempt to shape, reinforce, or change behaviors, feelings, or thoughts about an issue, object, or action." To that end, captology is one of many new design frameworks that map to new workflow-based learning products, which are characterized by task-specific, real-time contextual content and simulation embedded in the workflow.

Three captology design principles that probably have the most impact on the development of these new learning technologies are tailoring, simulation, and tunneling. Business process management systems and new transactional portals route information and tasks tailored specifically to workers based on their job role and the task at hand. Simulation is the most salient aspect of business process modeling and next-generation learning content.

The most compelling examples of tailored simulation are virtual coaches and wizards that are embedded in the contextual workflow. Tunneling is the use of these embedded wizards to persuade workers to take particular paths and actions based on job roles and business rules. Business rule engines are efficient tunneling technologies. Indeliq and Hyperwave both have business rule engines embedded in their learning platforms.

Professor Fogg advocates focusing on captology technologies that are specialized, distributed or embedded.

Nag, nag, nag: captology as a tool. As a tool, captology “increases self-efficacy, reduces barriers, and provides information for better decision making." Personalization, customization, and tailoring (which means intervening at the right time) pcome into play with captology targeted to individuals. At the organizational level, this is the nexus for new workforce analytics features in learning products from Docent, Saba, and PeopleSoft.

MIR3’s products use instant messaging to send alerts, called *performance triggers*, when the software notices something that needs the attention of humans. According to a February 2003, North County Times article, “employees who habitually fail to respond will be easily noticeable. Those who habitually lag in response may find themselves getting shunted lower on the priority list--especially bad news if you're paid by the project and not just on salary.” The technology is persuading workers to be more responsive or suffer the consequences.

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New Workforce Optimization products are notoriously effective at tracking poor employee performance, particularly in regard to attendance and time spent actually working. Captology applications have been referred to as *nagware* and the one thing Workforce Optimization products do well is nag.

Specialized captology: the right tool for the right job. Specialized computer devices such as handhelds, RFID (Radio Frequency Identification) and barcode readers, smartphones and tablet devices are now in use by workers in the field, on the factory floor, and in the workplace. Dock workers point handheld RFID readers at containers and are prompted with appropriate handling instructions or hazardous material precautions.

Barcode devices that read patient wristbands not only prompt nurses to provide the exact dosage of the right medicines to the right patents at the right time but also prompt nurses to provide explanations if medications aren't delivered on time.

Shrinkage is a term retailers use to refer to inventory losses due to theft. The shrinkage in retail is being mitigated by smart shelves that are stocked with products that have embedded RFID chips known as *smart tags.* Employees are alerted when shelves need restocking but they also are notified the exact moment high-theft products are removed from the shelves. Smart Tags will hopefully persuade shoplifters to alter their behavior.

Distributed captology: faster than just-in-time learning. Instant messaging (IM) and the new technology called *Presence Awareness* are perhaps the most vibrant new distributed captology technologies. The e-learning supplier Hyperwave has integrated IM and Presence Awareness technology from Bantu into their e-learning platform. Bantu's technology is also used in the U.S. Navy's Knowledge Online (NKO) portal.

IM and Presence are the core technologies used in the "Find an Expert" feature found in most enterprise application suites. Suppliers such as AskMe and Tacit Knowledge are marketing very sophisticated expertise mapping products supported by IM and Presence.

Embedded captology: closer than you think. Embedded technology is one of the fastest growing technology sectors. Smart tags are being embedded in machines, devices, structures, and various objects. Machines alert maintenance workers when they need to be fixed. This is called predictive maintenance. The machine prompts workers with the possible solutions to particular problems and provides procedural guidance when the maintenance is performed.

Performance improvement content now is routinely coded in chips embedded in equipment. Operators can point handheld devices at these physical objects to access a variety of procedural information. These "smart machines" also try to persuade workers **not** to perform actions that will damage expensive equipment or disrupt normal operations.

Professor Fogg also defines three functional roles of captology: tools, media and social actors.

Driving with dashboards: captology as a medium. According to Dr. Fogg, captology as a medium "provides first-hand learning, insight, visualization, and promotes understanding of cause/effect relationships." In this function, it motivates through experience. Simulation comes into play in the role of captology as a media or medium.

Tools like OnDemand from Knowledge Products are used to build simulations that are embedded directly into any 32-bit application. Performance evaluation data on individual workers is sent directly to manager dashboards. Portals and dashboards are becoming the dominant interface for these types of captology technologies.

These dashboards are aggregations of simulated processes displayed as interactive

flowcharts, diagrams, graphs and animation. A manager can run what-if simulations prior to implementing new workforce decisions and then literally modify performance metrics from the dashboard. Siebel and Cognos sell this type of interactive dashboard.

When presented with these examples, Dr. Fogg commented, “I'd classify this type of system as a persuasive technology if it attempted to get people to do things (or believe things) they normally wouldn't do. To simply accelerate work is not persuasion. To take people down a new path is. Sometimes the new path is the work practice management wanted all along but employees weren't able or willing to do.”

Hello Dave: captology as a social actor. Captology as a social actor invokes social rules, dynamics, and expectations. Tailoring, simulation, and tunneling are combined in new products that perform the function of social actors or agents. Virtual embedded coaches, wizards, bots, and agents are being used to persuade workers to perform tasks.

Lombardi’s TeamWorks product embeds contextual process coaches inside workflow. PeopleSoft’s Intelligent Context Manager functions in a very similar way by proactively prompting workers with task-related information in the context of specific tasks.

Ultimus products contain Flobots that automate task compliance and are embedded directly in Microsoft applications such as Microsoft Word and Excel. Other companies like Teamplate and Nobilis also embed process wizards in productivity applications.

There is even a new type of simulated worker known as a virtual subjectmatter expert. Ford uses a virtual mechanic named Ernie, built with technology from NativeMinds. Ernie tries to persuade franchise mechanics to fix cars the right way.

The U.S. Defense Logistics Information Service (DLIS) agency uses this technology to persuade customers and employees to use DLIS products. Even civilians can talk to the NativeMinds avatar called Phyllis at the DLIS Website at http://www.dlis.dla.mil/.

Phyllis isn't all that compelling--unless you are a DLIS customer--but a well-known AI-based bot called Alice is very persuasive. She will attempt to persuade you that she is indeed sentient and intelligent. She can be unnerving particularly when humans try to confuse her with trick questions. Alice is always willing to match wits at http://www.alicebot.org/.

For more information about captology, check out

- *Persuasive Technology: Using Computers to Change What We Think and Do* by B.J. Fogg. Published by Morgan Kaufmann Publishers, 2003
- *Simulation in the Enterprise: The Convergence of E-Learning,* Simulation and Enterprise Applications by Sam S. Adkins. Published by Internet Time Group, 2003

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