

e-Learning for the emergency services

By Len Watson

The acquisition of knowledge and research is vital to the future development of training and operational procedures. It is very apparent that ICT is under utilised in service training departments and minimal advances have been made in this quarter but the medium to long term view offers a broad and exciting expansion. Information collection and e-links for research and sharing of information are almost non-existent. It can be argued that most fire services have WEB sites but, almost without exception, they have no links, information centres or collection of information facilities. Even within service Intranets these facilities are limited to age old concepts and are designed to encompass pre-existent form filling and report writing. Standard Operating Procedures, Operational notes etc are generally available as unsecured text files. Although Adobe pdf files are now being introduced, the facilities for comment and feedback have not.

Utilising ICT for preparedness training is being looked at but traditionally this is likely to take some time before any real movement takes place. That is unless the emergency services embrace, not just the technology but a visionary new approach that will change the method of training encapsulation and delivery, validation and accreditation. For the most part the hardware is available but the necessary software, applications and programs are only now beginning to appear. Applications and programs that can offer:-

- Password protected secure publications with reader feed-back facility
- Interactive presentations as teaching aids
- Student centred eLearning, eAssessment, accreditation and monitoring
- Information collection, structuring, audit and analysis.
- A research facility for secure reporting, comment and wizard analysis
- Project and personal development with active and interactive programs
- An appropriate help-line facility

The image shows a web-based registration form titled "MVA rescue technician SERIES". At the top, there are logos for "HURST JAWS OF LIFE", "DEX CORPORATION", and "LUKAS". The form is titled "Registration & Key Code Entry". Below the title, there is a paragraph of instructions: "For the e-help line to function it is essential that you register this training program. Registering this program will not only give you access to the e-help line but will keep you updated on new developments and upgrades to this module. Simply fill out the registration form below, obtain and enter the Key Code to enable the presentation and press Submit." The form contains several input fields: "Contact name:", "Department:", "Address:", "Phone:", "Fax:", and "e-mail:". To the right of these fields is a section titled "Please enter Key Code" with a text input field and a "Submit" button. Below the input fields, there is a section titled "OBTAINING YOUR KEY CODE" with instructions: "To obtain the Key Code for this production please contact resQmed by email or telephone resQmed quoting your password." It provides contact information: "Telephone: +44 (0)1787 479605" and "e-mail: resqmed@resqmed.net". At the bottom of the form, there is a small disclaimer: "This program will be registered with resQmed Ltd. Confirmation will be sent by return of e-mail. Once you have obtained your Key Code keep it in a safe place as it will be required if this program needs to be reinstalled." There are "PRINT" and "QUIT" buttons at the bottom of the form.

Key-code or password protection and registration for access to a help-line

Creation of programs and securing content.

The choice of electronic packaging invariably depends on the content and nature of the publication, and of course the degree of security required. Microsoft PowerPoint has become a favourite with trainers, mainly because it's readily available and offers a simple to use platform. Unfortunately, the platform is memory hungry and cannot be made secure and is very limited in application. As a saved .pps file any embedded files and objects are saved separately and as such will fail to function if loaded on a different hard drive. The production is untidy and when saved to CD, all hyperlinks will need to be pointed to the appropriate CD drive. This now becomes the IT managers problem. It is time consuming and as such has a cost implication and requires PowerPoint viewer for each workstation. Additionally, with each upgrade of PowerPoint your training programs will also need to be upgraded.

Other and much more beneficial platforms are available which allow programs to be published in a variety of ways:-

- Executable (exe)
 - Install.exe
 - Program.exe
 - Macromedia.swf
 - Animations (Ani, flc, iff, mng, cgm, gif....etc)
 - Sound and audio (Wave, snd, aif, midi, cda...Etc)
 - Video (mpeg, avi, wmv, wmf...etc)
 - *iO* Steaming
 - **C +++**
- Adobe pdf
- html and ilm
- iml-embedded



Menu hyperlinks and control panel

Unavoidably, these platforms require a higher skill level by the user which removes DIY from the equation but, in comparison, can offer the best overall solution for the purpose intended. It can be argued that to remove the fire service instructor from the packaging process is a good thing as this will dramatically improve product design and quicken the process, reducing instructor down time and allowing courses to be run back to back. Consider, the cost implication may not be what you think, especially where the classroom can be student linked or where training becomes workstation based.

Executable stand-alone productions can be made to encapsulate all directories and files into a single **.exe** file. This file type can be equipped with auto run and an install.exe facility that can upload to any drive and install shortcuts direct to the start up menu and desktop. Executable files can also be made to run from the CD only and whichever method is chosen for publication, it can be password protected or given key-code security.

These types of programs are secure in every way and do not allow any changes or alterations to be made by the end user. However, they can be built to incorporate an Intranet, Internet or WEB linked facility for feed-back, discussion, reporting etc,. The install.exe can also be utilised as an over-write facility making the installing of upgrades and plug ins a simple matter.

As more and more programs become available, subject matter can be grouped and published within a 'creamer' as a single install.exe directory. Then to activate the desktop icon will launch the 'creamer' giving access to all programs within the directory. Not only will this reduce desktop clutter, it tidy the installation of all programs as a single file.

Electronic storage, access and security

Server storage for programs, collection of information and storage of feedback has to be structured into existing facilities. Even where eLearning programs are configured to run from CD/DVD only, where feed-back and research plug-ins are part of these programs, the links will need to be pointed to the appropriate directory files, otherwise these facilities will not function.

The greatest advantage offered by eSystems has to be the accessibility and sharing of information and the interaction and exchange that this allows. Workstations that are segregated from intranet systems and/or the Internet have totally missed the concept and the vision of eLearning, information collection and interaction. Of course security is paramount but IT managers worth their salts can set the necessary security levels and controls and still cater for freedom of information to allow this interaction to flourish.

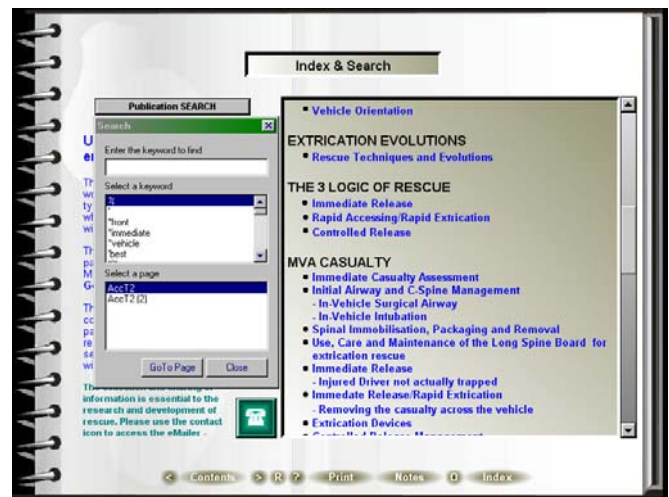
The installation of programs and the set up of directories and files need to be standardised. Accessibility should be available to all and 'User Guides' should be built-in. Programs should cater for ease of upgrades and be compression so as not to undermine storage capability.

Program Engines

The platform a training program is built on is important. The program engine should be flexible offering a menu giving access to all sections. The larger program should have additional windows so that sub sections and information sheets can be opened in conjunction with the main program.

Program Engines should include:-

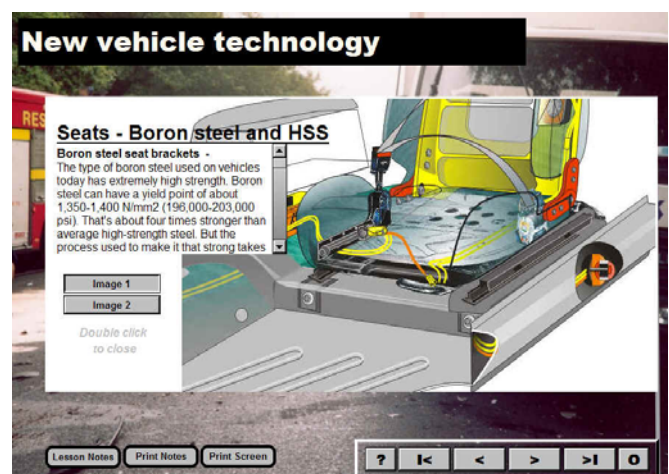
- Flexibility in its design
- User friendly operation with in-built user guide
- Main menu options
- In-built comprehensive active index and publication search engine
- Individual page control panel
- Summary assessment capability
- Help line/feedback facility
- Useful links



Index and in-built search engine with publication control panel at the bottom of the page

Objects can be imbedded with appropriate facilities -

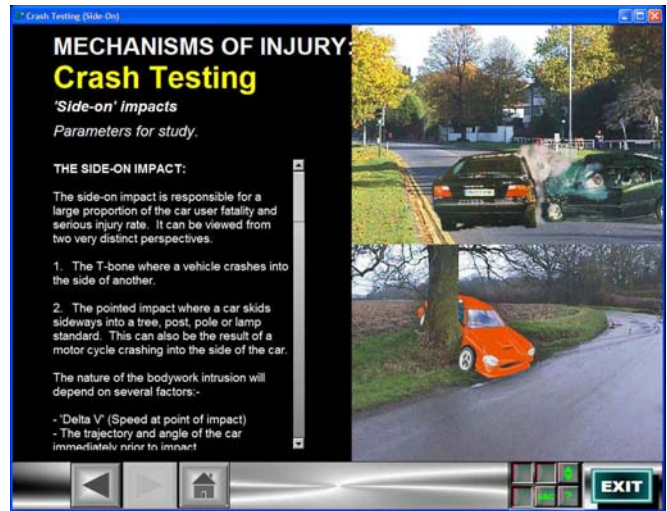
- Text boxes
- Scroll bars
- Audio with audio controls
- Slide shows with controls
- Video with standard controls
- Active schematics
- Animations
- Time lines
- Layering
- Special effects and Transitions
- Enlarge/zoom



explanatory scroll text boxes with active hyperlinks to layered illustrations and buttons for 'look up notes, Print notes, print screen'

No instructors presentation program can be considered complete without a summary page for validation that allows immediate access to any area of the program to be revisited. Student centred eLearning programs can be equipped with electronic self-assessment capability - hyperlinks and variables that include:-

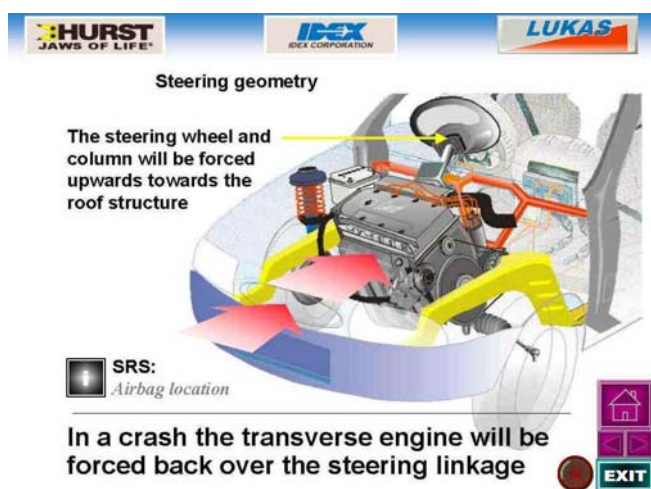
- Drag and drop
- Interaction
 - Selection
 - Activation
 - Yes/no
- Multi choice
- Text input boxes linked to set variables
 - Equal to
 - Same as
 - Contains
 - More than
 - Less than



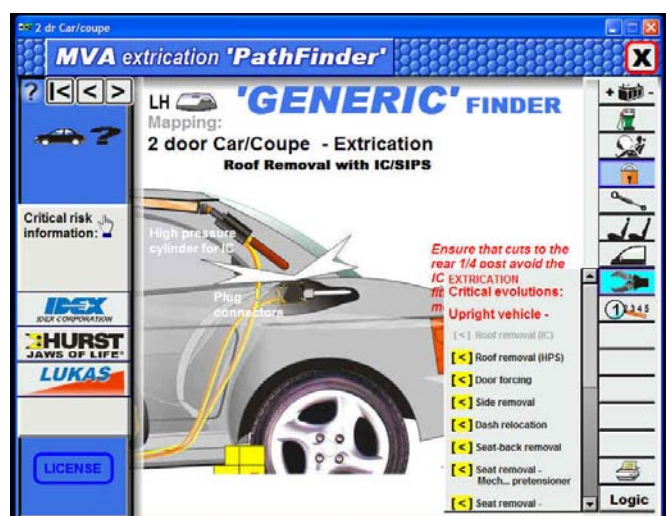
Functional accreditation can offer scoring and percentage grading or where students fails to meet the desired standard it can be programmed to redirect them to the areas that need revision. On reaching the set standard a certificate can be printed and, with additional scripting results can be automatically relayed to the line managers workstation.

Such training programs already exist and have been developed for motor vehicle accident rescue preparedness. Most of the criteria mentioned in this article, including high-end graphics and schematics are incorporated in the presentation and student centred eLearning programs.

The 'MVA extrication pathfinder' by resQmed Limited and sold under the Lukas Hydraulic and 'Jaws of Life' Hurst banner, is an extensive information centre designed for use at the roadside. Built on an 800 by 600 platform suitable for touch-screen tablet computer application, this program gives instant access to risk control measures, evolution options and risk critical information. It is instantly apparent from the volume of information and the dynamic risk management options available in this program, that firefighters cannot be expected to carry this information around in their head. Much thought has been given to the design of the engine, which even caters for multi tasking where more than one vehicle type is involved. It also allows plug-ins and upgrades to be uploaded as often as required without any fuss.



High-end graphics offer a much clearer understanding of subject matter and can be used to illustrate, illuminate and animate presentations.



In the Pathfinder, icons within a control panel, text and button have been hyperlinked to give instant access to vital information.

PtriMedia offer two new productions – *Crash Rescue - Vehicle extrication rescue and pre-hospital trauma care* – an electronic book with many useful in-built features, and *The Mechanisms of Injury – The kinematics of vehicle crashes and their likely injury patterns*. As a very comprehensive instructional and study program, the production offers volumes of new information for discussion and personal development.

There is no doubt that computer based training and information technology will help meet the new challenges facing rescue teams and afford the interactivity and sharing of information that is so essential for both team and personal development. Just as important, is the matter of data collection, problem and hazard identification and the necessary applications and programs to move things forward. ■

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[Sharing and collection of information](#)