



## 6th BILETA Conference 1991

Editor: Tim Green

---

### Corporate Hypertext for Training

*Dik Gregory*

**Robson Rhodes**

**Keywords.** Hypertext - computer based training - information retrieval - integrated training and job aids - decision support systems.

**Abstract:** Since January 1990, ROBSON RHODES has been developing a prototype for a wide area networked hypertext based training system. The system will run on the firm's local area network (LAN) servers, with a master server linking Novell based LANS in a dozen different office locations using X.25 communications. The project has been designed to shed light on a number of crucial information system issues. Specifically, we are concerned with the commercial applicability of hypertext to a training environment, and with developing training and job support environments which are fundamentally integrated. This project is using a human factors user centred design methodology in an effort to help ensure final user relevance and (therefore) acceptance.

#### Objectives

The commercial objective of the Project is to specify and build software tools that will allow Chartered Accountancy (CA) students, trainers and technical authors in geographically dispersed locations to access a hypertext environment via intelligent workstations.

The hypertext environment will contain an arbitrarily large number of richly interconnected documents comprising the firm's technical materials. These materials include our audit and tax manuals, professional guidelines, specialist articles generated by the firm's technical department and partners, and - importantly- case studies produced by the firm's technical trainers.

The system has been designed to be extensible ultimately to a firm-wide information retrieval system. This will give the firm's professionals access to technical information from any personal computer location.

#### Funding & Timescale

The project had an initial budget of £1 20K, of which 50% was provided by the Training Agency under the Business Growth Training Option 5 scheme (Training Innovations). In the event, the actual budget is considerably more than this, with additional resources being contributed both by ROBSON RHODES and our software contractors. Software implementation for the project is now estimated to end in June 1991, at which time a period of evaluation is scheduled.

## Team & Methodology

Project director for ROBSON RHODES is human factors and training technology consultant, Dik Gregory. Other ROBSON RHODES participants are being drawn from the firm's IT, Technical and Training Departments, as well as our Chartered Accountancy students. The internal project sponsor is our Human Resources Director, Mel Smaje.

The software is being written by Office Workstation Ltd (OWL) of Edinburgh. OWL is a specialist hypertext software company whose existing GUIDE and IDEX software technologies have been further developed for this project. The project team is utilising a *user centred design* methodology, developed by the human factors community over the last decade. The key emphasis of this methodology is on techniques that harness end user participation at appropriate stages of the design cycle.

These techniques and procedures are summarised schematically in Figure 1



## The Hypertext System

### What does the system consist of?

Figure 2 illustrates the first implementation of the system. Workstations and servers are Compaq 386n machines with 2 MByte RAM. Local area networking is via Novell 2.15. Wide area connectivity is provided through the X.25 protocol running on dedicated Kilostream leased lines.



### How is the system used?

The system is delivered to the user via the Windows 3 interface, helping to ensure a short learning curve and intuitive operation.

The current version of the hypertext will exist on each of the firm's file servers. Users will be able to access the system from any of the workstations linked to a local server. Any personal documents or student histories created or modified during a session are saved to floppy disk. Data from these disks is used in the event that a different LAN server is used at some different location for the next session. This procedure allows (for example) students to continue seamlessly with the same Case Study at different office locations without the need for excessive amounts of wide area network (WAN) traffic.

### What information is available on the system?

The materials in the hypertext system can be thought of as being organised as a number of *layers*. The user always knows what layer s/he is viewing via constant on-screen feedback. The three main layers include:

- the *Why* layer, containing Institute (of Chartered Accountancy in England and Wales) guidelines governing professional practice;
- the *What* layer, containing the firm's technical interpretations and implementations of the *Why* layer;
- the *How* layer, containing advisory, exemplary and tutorial materials developed by the firm's technical trainers.

In addition, there is a *Personal Documents* layer where users can generate their own flat text or hypertext files.

Case Studies are a special and vitally important kind of hypertext document stored in the *How* layer. They are created by Trainers as themed hypertext tours through appropriate sections of existing documents, and are punctuated by purpose-built exercises and commentary. Exercises can be developed and undertaken in other software environments (such as Lotus 123). The hypertext system allows for its current state to be suspended while a student uses a Lotus model. The student can return to the hypertext system when done and continue with the rest of the Case Study.

### Who gets access to what?

*Figure 3* illustrates the access to the various kinds of hypertext materials for five main types of user.



While all users have read access to all parts of the hypertext, write access is constrained by user type. Only the System Manager may edit help and configuration files; only Technical Authors may edit the firm's reference documentation in the *What* and *Why* layers; and only Trainers may edit materials in the *How* layer. Finally, only individual authors may edit and view the documents they create in the *Personal Documents* layer.

Attention is being given to integrating the hypertext system with e-mail to allow remote communications, particularly between students, trainers and technical staff.

### How is new information entered?

Documents can be typed or imported directly into the hypertext system (but only by authorised users) as ordinary text files. Hypertext links can then be created at the author's convenience. Optionally, existing word processed files can be "marked up" by inserting special codes conforming to standard markup language specifications. When the resulting file is imported into the hypertext, the markup codes are automatically turned into hypertext buttons and links.

Personal documents can be created at any time by any user. All other text creation/import can only take place on the development system. Periodically (anticipated at every 4 to 8 weeks), this development system will be checked for internal consistency and published over the wide area network (WAN). In this way, the content of the hypertext has been designed to grow and evolve to reflect and support the needs of an evolving professional practice.

### Conclusion

This project is building on the hypertext technologies of OWL's GUIDE and DEX software to provide a wide area networked, firm-wide hypertext environment suitable to support learning. Through a user centred design process, a number of user interfaces have been specified. Of special importance is the Trainer interface which will provide the means to create directed pathways through

the hypertext *ie* case studies. Because the case studies will necessarily draw (at least in part) on the firm's technical and corporate information, the system is naturally extensible into a firm-wide technical information system. Such a system essentially represents an integrated training and job support system, serving to sew the two together into a seamless fabric.

The system will allow the institutionalisation of the firm's technical knowledge in a way which leaves that knowledge both explicit and easily accessible to aff staff.

We believe the ROBSON RHODES' corporate hypertext system will be of enormous, growing value wherever it is appropriate for professionals to consider themselves as both learning and learned.