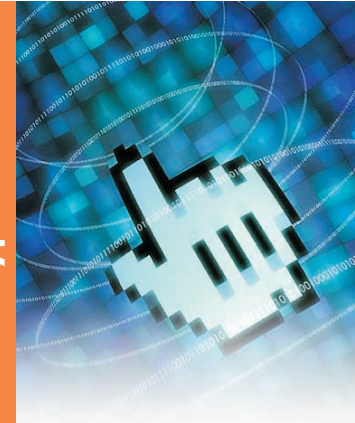




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## Operative Ultrasounds for Surgeons, Volume 1: A step towards diversifying learning tools

### The premise

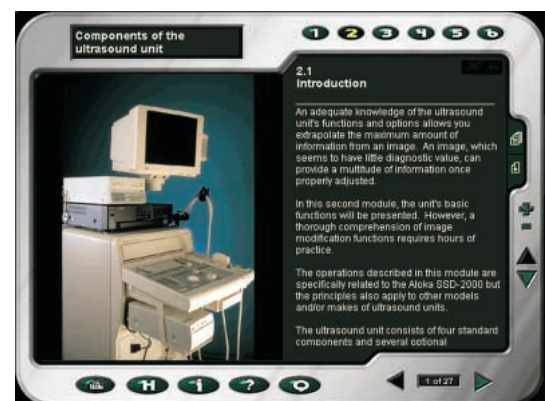
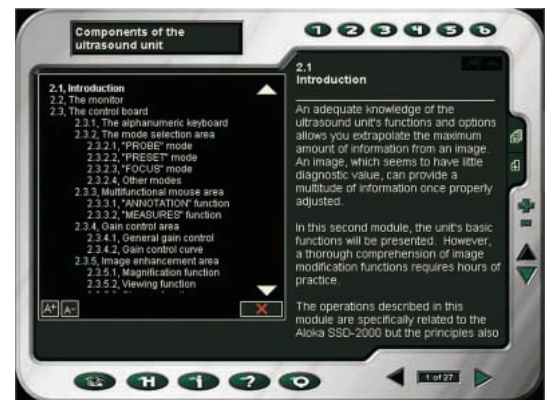
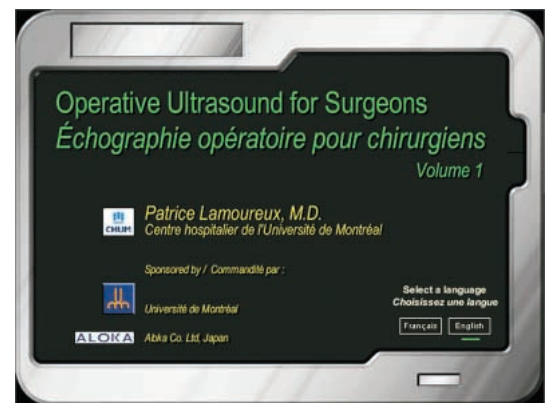
Multimedia is an ideal medium for medical subject-matter for its ability to illustrate and demonstrate the many aspects of medicine. Surgery techniques and procedures is a good example. Dr. Patrice Lamoureux M.D., M.A., D.U., teaches at the Faculty of Medicine of the University of Montreal and practices at the Notre-Dame campus of the Centre hospitalier de l'Université de Montréal (CHUM). He is a young and dedicated doctor, teacher and surgeon, who wanted to explore multimedia as an additional learning tool for his students to help them understand faster thus reducing the learning time. He chose a newly developed technique as a first project: using ultrasounds in the operating room in combination with non-invasive surgery techniques.

As a very busy professional, his available time to invest in such an endeavor was a scarce commodity, and a solution such as Hyper-B became quite interesting.

### The project

The objective of the project was to produce a multimedia-based learning tool intended for all surgeons and surgery residents who want to add operative ultrasound to their diagnostic and therapeutic arsenal. This courseware would be utilized in three ways: as a preamble to practical sessions, as a tutorial during practical sessions, or as a reference when performing operative ultrasounds in daily practice. This virtual teacher would comprise 6 modules covering content such as basic physical principles of sound, components of the ultrasound unit, basic procedure, anatomical landmarks, common pathologies and an interactive simulated surgical intervention. The content would be supported by text, schematics, animation, medical illustrations, medical imagery, video and 3D modeling.

The project was supported by the University of Montreal, through a grant for improving teaching methods, and also by Aloka Corporation LTD, the Japanese manufacturer of the ultrasound unit used for the project.





### The solution

Our solution was two-fold: to provide an efficient reusable multimedia development system facilitating production and supporting valuable end-user features, and (2) to develop a viewing interface designed to access all content from the same screen, offer hypermedia and hypertext linking, provide an index and list of figures, and offer bookmarks and note-taking capabilities.

The viewer's interface is designed as a presentation pad, much like a personal digital assistant (PDA), that will accept any number of contents. This approach is at the core of the Hyper-B solution: the investment on the Viewer part of the project can then be amortized over other projects, constantly reducing the initial investment.

### The result

The end-product is a high-quality interactive learning tool, a stepping stones for future endeavors by Dr. Lamoureux and his colleagues.

