

# 7 ways to make a high-tech office more efficient

Dr. Larry Emmott explains how he designed his dental office to accommodate new technology and deal with outdated equipment.

By Dr. Larry Emmott

If you ever have had to move something in the dental office, then it wasn't where it should have been—if it were, you wouldn't have had to move it. This means that anything movable never is in the right place; it's always in the wrong place. (Hang in here; this isn't over yet.) So there really is no right place for something that moves. If something isn't in the right place, it can't be used. Therefore, since there is no right place for something that moves, movable things are never used.

Did you get that?

What that says, in a silly way, is that if some equipment or high-tech device isn't convenient, we tend not to use it. No matter how great a technology device is, if it isn't easy to get to, it is forgotten. Consequently, both office design and how we place technology in it, play a tremendous role in how technology is used and whether or not the dentist will get a good return on a technology investment.

What does this mean in real life in the dental office? In my office, for example, we had the following experience with our patient education system.

The system is a powerful, well-designed, high-tech educational program, which uses full-motion video, sound, and animation to explain dentistry to patients in an entertaining manner. When I first installed the program, though, I never used it. Here's why.

For the system to be effective, a patient must be able to see and hear presentations, and a dentist or dental team must be able to easily find and launch appropriate topics. When we first installed our system, we had our computer monitor at the side of a chair, but a patient could not see it easily. We could move the monitor, but that took time. And, if we moved the monitor, we had to touch it, breaking asepsis. In addition, the mouse was in an awkward place for the assistant to reach, and it was impossible for the dentist to reach it.

As a result, first we had to move the monitor so a patient could see it. Then, the dentist had to get up and move to where the mouse was, lean back to see the monitor, and launch the program. It was such a hassle that we never used the program. It's a great program, but our poorly placed technology prevented us from using it well.

This is just one example of the many mistakes we made trying to use technology well in our office. How did we fix them?

For awhile, it was a weekly ritual. I'd come in to the office on the weekends and completely re-arrange every-

thing. My staff began to dread the smell of sawdust on Monday mornings. However, all of our mistakes eventually led us to some wonderful and, often very simple, solutions.

Following are seven of the problems we encountered in adjusting to our high-tech surrounding, and how we eventually solved them (the problems/solutions are summed up in the sidebar on the right).

See also two related sidebars: "Room design resources," a list of office-design products and consultants, on page 76, and "The digital office of the future: a look at its workflow," on page 80.

## 1 Problem: Patients are viewing staff-only material

Sometimes, we want patients to see a computer monitor, and sometimes we don't. We want them to see their chart, photos, and x-rays, and our patient education programs. At certain times, though, we don't want them to see other patient's charts, a daily schedule, or even their own chart.

## Solution: Install dual monitors

In our office, we found the obvious solution to this problem. We simply moved the monitor so that a patient could either see it (or not see it). The problem with doing this, though, was that we had to touch the monitor to move it. Also, moving the monitor was awkward and took time, so we tended not to use the monitor at all.

The other problem was that the monitors were big and bulky. In addition, the movable brackets we bought to support them cost more than the monitors.

We had a much better solution. We decided to use two monitors: one for the patient and one for the practice. This actually cost less than having expensive supports, and then we actually used the monitors because they were always in place ready to go.

## 2 Problem: Patients still are viewing staff-only material

Now, we had two monitors, but we still had a problem. The monitor in front of the patient still might be showing items that we didn't want the patient to see.

## Solution: Install dual video cards and dual monitors

The best solution was a nifty feature that was introduced in Windows 98—dual video cards. This feature allows users to have two monitors, each showing com-

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DR. LARRY EMMOTT

## Room design resources

For a list of companies currently offering systems and services to help you accommodate high-tech equipment, see page 76.

## Dr. Emmott's office solutions

Here are seven examples of how Dr. Emmott solved problems with setting up technology in his office

- 1 **Problem:** Patients are viewing staff-only material  
**Solution:** Install dual monitors
- 2 **Problem:** Patients still are viewing some staff-only material  
**Solution:** Install dual video cards and dual monitors
- 3 **Problem:** 2 staff need to use 1 mouse  
**Solution:** Install 2 mice
- 4 **Problem:** Dealing with bulky monitors  
**Solution:** Install flat-panel monitors
- 5 **Problem:** Unworkable desktop-computer configuration  
**Solution:** Break up desktop components; invest in computers that can be recessed into walls and in flat-panel, touchscreen computers.
- 6 **Problem:** Mouse and monitor taking up crucial counter space  
**Solution:** Move it
- 7 **Problem:** Constantly changing technology  
**Solution:** Be flexible; place conduits in floors and walls

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pletely different displays, working from the same computer. With dual video cards, we now can have a patient's chart or x-rays displayed in front on the patient monitor, and the daily schedule displayed behind on the staff's monitor.

*Note:* Dual video cards can be used

with the new Windows XP Pro, but not with the XP Home version.

**3 Problem: 2 staff need to use 1 mouse**

Another problem we had in our office was that our computer controls—that

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## Room design **resources**

For more information on room design to accommodate technology in the dental office, check out the following companies:

**CIEOS INC.**

[www.cieos.com](http://www.cieos.com)  
800-627-3205

Offers a complete line of monitor supports, carts, keyboard supports, and furniture, designed to accommodate dental and medical uses.

**COMPUTEK DENTAL SYSTEMS INC.**

[www.computekdental.com](http://www.computekdental.com)  
800-237-7782

Designs and sets up dental-office technology (digital and analog); installs hardware.

**COMPUTER RESOURCE TECHNOLOGIES (CRT)**

[www.c-r-t.com](http://www.c-r-t.com)  
800-530-8660

Dental-technology integration experts. Offers digital and ergonomic solutions to office design, including dual-video operatories.

**DENTAL TECHNOLOGY CONSULTANTS**

[www.thedigitaldentist.com](http://www.thedigitaldentist.com)  
866-204-3398

Offers full-service office-design consulting and on-site technology integration as well as computer repair, installation, and troubleshooting.

**DIGITAL DENTAL SOLUTIONS (formerly Video Dental Concepts)**

[www.videodental.com](http://www.videodental.com)  
800-323-2690

Offers the Digital Operatory Terminal (DOT), a wireless tablet designed specifically to solve space problems in dental offices.

**ERGOTRON**

[www.ergotron.com](http://www.ergotron.com)  
800-888-8458

Offers monitor supports, wall mounts, carts, keyboard supports, and furniture designed to accommodate dental technology.

**ICWUSA.COM INC.**

[www.icwusa.com](http://www.icwusa.com)  
[www.icw2.com](http://www.icw2.com)  
800-558-4435

Offers supports, arms, brackets, and ceiling mounts. Will custom-fit technology for dental offices.

**MEDLINX INC.**

[www.medlinx.net](http://www.medlinx.net)  
877-MedLinx  
(877-633-5469)

Offers computer consulting, service, and repair for dental offices.

**MULTIMEDIA DENTAL SYSTEMS INC.**

[www.mediadentusa.com](http://www.mediadentusa.com)  
877-770-8514

Provides computer and related services, hardware, installation and support.

**PATTERSON DENTAL SUPPLY INC.**

[www.pattersondental.com](http://www.pattersondental.com)  
800-328-5536

Offers equipment specialists to create design plans to meet dental office needs. (Check out "Office Design" under "Services" on company Web site.)

**SULLIVAN-SCHEIN DENTAL INC.**

[www.henryschein.com/dental](http://www.henryschein.com/dental)  
800-336-8397

Offers design professionals and equipment specialists to help dentists design/remodel office. (Check out "Office Design" under "Equipment & Repairs" on company Web site.)

**UNTHANK DESIGN GROUP**

[www.unthank.com](http://www.unthank.com)  
402-423-3300

Offers dentist and architect team to help design an entire office (both understand how high-tech fits in); also offer seminars in dental-office planning.

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is, our keyboard and mouse—were located so that only an assistant could use them.

If a dentist wanted to use the keyboard or mouse to view some notes, examine an x-ray or photo, look at a health history, or check a schedule, the dentist either had to

ask an assistant to do it, or do it himself or herself: that is, get up, waste time, and break asepsis.

If the dentist asked the assistant to use the controls, the result was that he or she was often speaking over the patient in an inappropriate manner, and it also was taking two people to do one person's job.

**Solution: Install 2 mice**

We tried a number of things to solve this problem, including an expensive electric touch pen and an early, infrared, wireless keyboard/mouse combination. The infrared keyboard was a complete failure, as we discovered infrared rays do not readily pass through dental assistants.

The much better solution was a simple mouse on the doctor's side. Now we have two mice in each room, one for the doctor and one for the assistant. It works well, and it cost less than \$30 to set up.

**4 Problem: Dealing with bulky monitors**

Our old CRT (cathode-ray tube) TV-style monitors were huge, bulky, and heavy. They took up a lot of space, and the brackets that were needed to hold them had to be industrial-strength fortified. One day, I actually came back to the office after lunch and found that one of our monitors and bracket actually were pulling the entire cabinet out of the wall because they were so heavy!

**Solution: Install LCD flat-panel monitors**

For a long time, LCD flat-panel monitors were expensive and didn't have a very good display. In the last few years, though, their prices have come way down, and their quality is much better.

Flat panels are light, thin, and can be mounted without the base, using a variety of special supports from companies such as Ergotron.

*Note:* To use an Ergotron mount, a flat-panel monitor must be compliant with the Video Electronic Standards Association (VESA) ([www.vesa.org](http://www.vesa.org)) physical standard for flat-panel monitors. This means the mounting system on the back conforms to the VESA standard, making monitor attachment quick and easy.

It also is convenient to have sound built into a flat panel. Make sure, though, that the sound is built into the panel (and not the base), because most likely you will be using an Ergotron support and discarding the base.

**5 Problem: Unworkable desktop-computer configuration**

Desktop computers are designed for users who sit at desks. While seated, the monitor is at eye level; the inputs (keyboard and mouse) are just below the monitor, at hand level; and the CPU (the box), is down below on the right.

In our dental treatment rooms, though, we weren't seated when using our com-

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You can read more columns by our technology expert Dr. Larry Emmott by going to our Web site: [www.dentalproducts.net](http://www.dentalproducts.net). On our home page, position your mouse over the **DPR@ctive** tab, then scroll down to, and click on, "Consult the Experts." On the "experts" page, click on "Emmott on Technology." Then click on "view columns" to find all of the featured columns written by Dr. Emmott.

**dentalproducts.net**

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puters. In addition, sometimes an assistant would use the computer, and sometimes a dentist would use it. Sometimes, we wanted the patient to see the computer; sometimes we didn't. The vertical-stack desktop configuration just didn't work.

**Solution: Break up desktop components; invest in computers that can be recessed into walls and in flat-panel, touchscreen computers**

Our first solution was to break up our computer's desktop components and put them wherever they were needed (rather than in a vertical stack). So, we placed

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## The digital office of the future: **A look at its workflow**

Imagine a future dental office with no paper. Here's the scenario:

### Reception area

- A patient signs in at a touchscreen in the reception area and then fills in an updated health history using a handheld wireless tablet.

- A tablet transfers the new information to the patient's electronic record instantly, and the patient confirms (signs it) with a thumbprint.
- Terminals throughout the office alert the doctor that the patient is ready.
- The doctor, who is walking down the hall with a wireless tablet, examines the patient's record, including x-ray, photos, and the new health history.

### Treatment rooms

- In the treatment room, the patient reviews the proposed treatment at a convenient, chairside terminal.
- Then the patient goes online to get some additional information, check her insurance coverage, and, if need be, arrange financing.
- The doctor speaks the patient's treatment notes into a computer, which confirms them with a secure voiceprint and date stamp.
- The patient makes an appointment with an assistant at chairside, and the office computer sends a wireless message that puts the appointment in the patient's electronic schedule (a PDA).
- Later, the office will send a reminder to her cell phone or e-mail.
- The patient's insurance data will be sent to her insurance company, which will transfer payment to the office account instantly.
- Other payments—whether with a credit card, patient financing, or a billing statement—will all be sent and received electronically.

### No more files cabinets and other 'paper' technology items

Think of all the items designed to accommodate paper technology, including the ones below. All will go and be replaced with electronic technology.

- File cabinets
- Chart pockets
- Writing surfaces like desks, counter tops, and even the entire front desk
- View boxes
- Faxes
- Chart folders and forms
- In-boxes, out-boxes
- Sticky notes

monitors on brackets, CPUs under the counters, and mice on the sides of desks or counters.

Another solution, and potentially a much better one, is to install computers designed specifically for use in a dental-treatment room.

An example is the Cieoport from Cieos, one of the first of these "dental" type computers. The Cieoport computer is sealed in a small case, which can be recessed into a wall.

A similar solution is the Digital Operatory Terminal (DOT) from Digital Dental Solutions (formerly, Video Dental Concepts). The DOT uses a small CPU and a wireless flat-panel touch screen.

## **6 Problem: Mouse and monitor take up crucial counter space**

In our office, the keyboard mouse and monitor were taking up our much-needed counter space, which we had been using for our instruments and materials.

### **Solution: Move it**

To solve the problem, we decided that if the technology is in the way of doing good dentistry, then the technology is in the wrong place. Dentistry always comes first. Among our solutions: Put the monitor above the workspace with a support arm. Put the keyboard under the space with a sliding drawer.

## **7 Problem: Constantly changing technology**

Eventually, we came to this conclusion about technology: If there is one absolute truth, technology is going to change, and it is going to change pretty quickly. In our office, just as soon as we had something working well, another new technology came along that changed everything.

### **Solution: Be flexible; place conduits in floors and walls**

Our solution: Build in flexibility. Don't hard-wire everything, and don't customize spaces to hold your hardware. Instead, place large conduits in all the walls—from the drop ceiling to the floor—and place conduits under the floor—from the back of the room to the area under the chair.

Another solution for constantly changing technology is to build cabinets with movable partitions and with multiple access points for power and other connections. There is no way you can know what high-tech devices we will be using five to 10 years from now, so plan for change.

In the past, office design reflected the technology of the past, that is, analog and paper. Office design of the future will reflect the technology of the future, that is, digital and electronic. Plan now to go with the electronic flow. The future is coming, and it will be amazing! **DPR**

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*Dr. Larry Emmott, a recognized authority on dental technology in America, is a practicing general dentist in Phoenix. He also is a professional speaker, a featured instructor at the Las Vegas Institute, and a member of the American Academy of Dental Practice Administration. He has written hundreds of articles on computer use and management.*

*Dr. Emmott writes a monthly electronic newsletter, "Emmott on Technology." He offers hands-on technology seminars to selected dentists in his Phoenix office. Participants receive personalized advice on setting up their office to maximize their high-tech future. Topics include digital radiology, cosmetic imaging, and treatment room design.*

*Dr. Emmott also offers onsite consulting on dental office technology and design along with Web-based information plus links to resources.*

*To find out more, check out Dr. Emmott's Web site at [www.drlarryemmott.com](http://www.drlarryemmott.com) or call him at 602-279-1641.*

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