Some “Hidden” Costs of Computers


We all know what it costs to buy a computer. Nowadays, one can get quite a good machine for less than $1,500. It even comes bundled with some application software such as a word processor and an integrated package.

With this sort of figure in mind, many people then develop a plan for acquiring a large number of computers for a school. They tend to assume that this initial cost is the full cost, and that any “incidentals” will be absorbed through existing budgets. For example, computers use electricity, but the electrical costs will be a modest part of the total electrical bill for the school or school district. Maybe they will need to do a little rewiring. This can be absorbed in “building maintenance.”

Unfortunately, such muddled thinking leads to a severely under budgeted situation that fails to support the goals that a school has for information technology. Here are a few of the more obvious flaws in the budgeting process. There are no provisions for:

1. Printers (and printer supplies), scanners, digital cameras, desktop presentation systems, and other necessary hardware.
2. Connectivity, local area networks, servers, and backup.
3. The range of software that a typical school wants and needs.
4. Technical and administrative support.
5. Staff development.

The list can easily be extended. For example, who pays for the teacher time for making the major changes in curriculum content, instructional processes, and assessment?

A good plan for information technology in the school addresses the costs of all of the types of items listed above. Some of the costs are ongoing, while others require an amortization schedule with provisions for periodically replacing outdated hardware and software. For the remainder of this article, I will address just items 4 and 5.

**Needed Personnel**

Over the past year, I have read several articles about the “real” cost of providing a corporate employee with a desktop computer. Much of this data comes from the Gartner Group, Inc. Quoting from its Web page (http://www.gartner.com):

Gartner Group, Inc., is the world’s leading independent adviser of research and analysis to business professionals making information technology (IT) decisions, including users, purchasers, and vendors of IT products and services.

Here is some Gartner Group, Inc., data from the May 26, 1997, issue of Business Week (p. 136) on the estimated annual costs of providing a corporate employee with desktop-computer support services. The figures are not the cost of the hardware, software, and connectivity, but the
cost of the people who provide the needed technical and administrative support for the desktop computers that corporate employees use.

<table>
<thead>
<tr>
<th>Desktop computer hardware and software:</th>
<th>Yearly Cost</th>
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<tbody>
<tr>
<td>Technical support</td>
<td>$1,066</td>
</tr>
<tr>
<td>Administration</td>
<td>$945</td>
</tr>
<tr>
<td>Network technical support</td>
<td>$638</td>
</tr>
<tr>
<td>Network administration</td>
<td>$552</td>
</tr>
<tr>
<td>Total</td>
<td>$3,201</td>
</tr>
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</table>

Notice the “bottom line.” The annual costs of the people needed to support the computer system user are far more than the costs of a medium-priced computer. One can argue about what these numbers might mean when translated into a school environment. For example, perhaps the administrative and technical support people in corporations are paid a lot more than corresponding people in a school setting. If so, then perhaps $3,201 per microcomputer user is too high.

Alternatively, one might argue that in a school setting there is apt to be a huge diversity of hardware and software, and much of the hardware is relatively old. Many of the machines have multiple users, which further complicates maintenance and support. Such arguments suggest that the $3,201 figure is too low.

Let’s make this discussion more concrete. Suppose that a school has 500 students and approximately 30 to 35 educational and support staff. Assume that the school has one microcomputer per eight students (close to the national average in the United States), and a microcomputer for each staff member. This means that the school houses nearly 100 microcomputers. Further suppose that this is a local area network that is connected to a district network, the Internet, or both.

If we use the corporate figure of $3,201 per networked microcomputer, this would mean that annual support costs would be approximately $320,000—or six full-time equivalents (FTE) of support personnel, assuming they are paid at the level of teachers and have an equivalent benefits package.

Of course, the reality of the situation is that a school with 500 students is lucky to have one full-time technology coordinator. Hardware maintenance and repairs that are beyond the skills of this person are contracted out to the school district or to a local business. The total level of support provided by this internal and external support system might be two FTE.

What can we say about the other four FTE of needed support?

1. The actual level and quality of support is far less than what is provided in the corporate world. The staff and students have an inadequate level of support.
2. Much of the support comes out of the hides of the staff. These staff members—many of whom are already overworked—take time from their other duties to provide support to computer users.

Some schools and school districts are making good progress in implementing a partial but significant component of a solution to the problem. They are training students to play major technical and administrative support roles. This approach has now been tried in enough schools and school districts that many of the bugs have been worked out. It can work quite well. It can be beneficial to both the students who are learning to provide the needed support and the computer users who are receiving support from students.

A school district in Olympia, Washington, provides a good example of such a school site. You may want to check out its Web site (developed by the students) at http://kids.osd.wednet.edu.

How is your school district dealing with the technical, administrative, and network support issues? I’d like to hear about innovative solutions.