



COMPUTER
NETWORKING
AND
TECHNICAL
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When computers in a school are connected to form a network, many benefits are realized:

- resource sharing (peripherals, applications, files, data)
- improved communications (E-mail, conferences, bulletins)
- information access (reference CD-ROMs, databases).

There is a price associated with the benefits, however (in addition to the extra expense of network cards, hubs, cabling, etc.). Networking increases the complexity of computer usage. To quote Ekhaml and Ekhaml (1995), “More responsibilities and more problems are associated with networking.”

In today’s information age, networking computers in the schools is essential. Students must develop the skills they will need once they graduate and join the workforce. Thus, school districts must implement networks at the campus level. The campus local area networks (LANs) need to be interconnected to form a district wide area network (WAN). And, the district WAN must be connected to the National Information Infrastructure, or NII, (the Internet). School districts must also realize that each level of networking adds more complexity and increases the probability of encountering difficulties in computer usage. **This necessitates additional technical support.** In discussing the technical support required to maintain networks, McCain and Ekelund state: “After planning, technical support is the second requirement for successful long-term network use. Two possible sources are staff hired for this purpose by the district, and hardware and software vendors. The former are required for proper support of the computers in the schools; the latter can be a valuable source of information for implementing new technologies.”

These authors continue with a discussion of what constitutes technical support: “Technical support includes installation, troubleshooting, and fixing problems. Actual repair of broken computers may or may not be included. ...Therefore, school districts should set a goal of hiring one or more technicians [or network specialists] to handle the technical aspects of computer and network installation and maintenance. Technical support staff should have close communication with educational support staff. Thus, technicians should plan their work in conjunction with, or be under the supervision of, the computer coordinator (on the district level) or the computer resource teacher (on the school level).”

In a broader perspective, technical support also includes training, timely individualized user assistance, and maintaining a telephone “hotline”. Moursand (1992) also indicates the requirement for additional technical support coincident with network implementation: “The

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networked hypermedia classroom will prove to be a major challenge to our educational system. To develop and maintain this environment will require:

1. A great deal of teacher training.
2. **A great deal of technical support for students and teachers.**
3. A great deal of curriculum development.
4. A substantial increase in budget allocations for technology and **support of technology.**
5. A long transitional period, while both students and teachers learn on the job.”

Moursand continues: “Given sufficient time and a **sufficiently supportive environment**, almost all current teachers can learn to deal effectively with computers.”

In many schools, if networking responsibility isn’t assigned to a teacher as an additional responsibility, or to an under-paid teacher aide, it is given to the library media specialist (librarian). Experts interviewed by Ekhaml and Ekhaml (1995) responded to this practice: “Generally, school library media specialists should **not** serve as network administrators because of the different natures of their jobs. The school library media specialist is primarily an educator working with other educators to provide instruction. The network administrator, on the other hand, is a technician or expert who is responsible for the installation, configuration, maintenance, administration, and operation of the network.”

In other words, the network administrator must possess a collection of highly specialized skills. The skills required to function as a network manager are more specialized and specific than those necessary even for the position of technology director or technology coordinator. Ekhaml and Ekhaml elaborate: “The network administrator is a specialist responsible for hands-on operation of a particular LAN (local area network) in a single school, while the technology director is a generalist who engages in district-level technology planning, over-all curriculum design, policy development, technology training, hardware and software selection, purchasing, budgeting, public relations, evaluation, as well as overall administration of all networks in the district.”

The authors list the skills required for each position:

“The network administrator is the ‘nuts-and-bolts’ person. He or she should master the following:

- Network installation and configuration
- Network administration (e.g., setting up and modifying user accounts; establishing security measures; and finding solutions for virus attacks)
- Network maintenance (e.g., making backups, deleting and restoring files, and providing enough disk space)
- Network troubleshooting (e.g., diagnosing problems and repairing)
- Network engineering (e.g., upgrading servers and adding or replacing disk drives)

- Knowledge of short- and long-term goals in networking for the school or schools in the district
- Good working knowledge of networking software in use
- Knowledge of state-of-the-art technology in order to make sound recommendations to administrators”.

The authors also indicate what every technology director needs to know:

- “• Have an overall knowledge of educational technology. Some technology directors are expected to help teachers integrate technology into the curriculum.
- Have a basic understanding of computer networks
- Be able to set up and develop training programs for users
- Know how to select software and hardware
- Have a long-term vision of the network and what steps will help achieve goals efficiently and effectively
- Be able to interact with people effectively
- Possess supervisory skills”.

