Implementing PC Technology with Organizational Change

Some obstruct potential of computers in courses

COMMENTARY

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Diffusion of innovation theorists subdivide the innovation process in organizations into two stages—*initiation* and *implementation*. The initiation stage, which includes the decision by organization members to adopt an innovation, is characterized by information-seeking, problem-solving, and decision-making. The implementation stage is where the actual work of changing the organization and putting the innovation to work takes place.

Although few mass communication educators may argue against the adoption of the personal computer as an instructional technology, significant barriers exist that can inhibit its successful implementation. There are several important questions worth considering. For example:

Have *all* faculty members in the unit adopted the technology, or are there some who resist it?

Have *some* faculty members who adopted PCs later given up on the technology and returned to their former instructional methods?

Are *all* courses that could most effectively be taught in a computerized lab currently taught there?

Is there a *steady rate* of progress in obtaining new hardware and software?

Is the unit *falling behind others* in the academic and professional areas?

Is there a training program and/or released time for faculty to *learn* how to use the technology?

The answers to these questions are important because they deal not just with whether the PC has been adopted in a mass communication unit but also with the success of its implementation.

Change theory

Organizational change theory suggests that many mass communication units are in a *transitional* state regarding PC technology. The change literature also warns that this transitional state can be one of frustration, disappointment, and disillusionment for organization members. It is critical that we manage this transitional state effectively because it greatly determines the quality of the unit's future state. Fortunately, the literature also suggests appropriate

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strategies for the successful management of this transitional state.

Many mass communication educators are quick to embrace new technology in the classroom and are very sophisticated in their use of PCs. These *early adopters*, for reasons of their own, found the time to learn and implement the technology. However, other educators face the problems and barriers that arise whenever individuals and organizations are in transitional states prompted by technological innovation.

Typology of barriers

Organizational change theorists offer a useful typology of barriers and obstacles to the successful implementation of an educational innovation. The first two barriers, lack of clarity about the innovation and lack of skills and knowledge, may be viewed as those that characterize individuals. The others characterize the organization as a subunit.

Lack of clarity about the innovation. The implementation stage of the diffusion process in organizations is often characterized by confusion. At this stage, organization members are faced with questions about how to use the innovation. For example, as educators try to integrate PCs into their teaching they may find that available software is inappropriate for their needs, hardware and software documentation is vague and hard to understand, or that hardware is unreliable.

A lack of clarity about how to use an innovation such as PCs can also produce role ambiguity for instructors. D.B. Sachsman reported in 1986 in this journal that when they opened a new computer classroom at Rutgers none of the journalism faculty knew how to use the machines. The responsibility for instructing students and faculty in their use was assigned to a teaching assistant, with less than satisfactory results. Sachsman observed that "we should have realized how uncomfortable seasoned teachers would feel when asked to learn along with their own students. Many instructors instead stood by and watched the classes without assuming the role of students."

Lack of skills and knowledge. Organizations in the early stages of technology implementation often face a human-resource gap. Mass communication programs face the same problems when they try to implement computer technology. Few educators have had formal training in how to use computers, and even fewer in how to use the PC as an instructional tool. While many educators use the PC competently, they lack the time to help other faculty members along.

Unavailability of necessary materials. The lack of funding for instructional materials is a reality that all educators face. Although the cost of computer hardware continues to decrease, the expense of outfitting a computer laboratory is still very high, especially for desktop publishing applications. Recent estimates of a word processing/graphics lab places the minimum cost at more than $40,000. Depending on the level of sophistication, the maximum can be astronomical. And, in a laboratory setting, the cost of software continues to be prohibitive for some units.

Incompatible organizational arrangements. Organizational change researchers have also found that existing policies and practices of educational institutions are barriers to the implementation of an innovation. For example, one of the greatest barriers of this type to the implementation of PC technology involves the procedures followed in acquiring the technology. Administrators often budget only for hardware and software and neglect to consider the "learning curve" involved for instructors to incorporate the new technology into curricula. Incompatible organizational

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arrangements may also be characterized by the lack of personnel to manage the unit's computer resources.

Lack of motivation to change. All people and organizations are, to a certain extent, resistant to change. Even when they know the change will bring long-term rewards, some people are reluctant to undergo short-term inconvenience to gain those rewards. Some educators view the learning of a new computer system or software package not as an exciting challenge, but as one more task piled upon an already full schedule of teaching, research, and service. And even "user friendly" systems aren't always friendly, especially if users lack confidence to begin with.

Change strategies

Successful implementation of innovation diffusion depends on change strategies that focus on planned organizational change, changes that are conscious, deliberate, and intended. There are three broad change strategies we should consider.

Following a *power* change strategy, administrators can mandate curriculum and instructional method changes. Although coercion can speed the implementation process, change theorists warn of the *we* vs. *them* perspective that may result when educational innovations are forced on people. Implementation also will be more successful if individuals affected by change are allowed to take part in its implementation. Given the characteristics of academic organizations and the importance of academic freedom, power strategies should be avoided. However, for legal and economic reasons, it may be necessary to designate "official" software for specific laboratories and courses.

Another change strategy involves the changing of values and/or beliefs of change targets through *re-education.* These strategies are probably of limited use because values and beliefs generally are not easily or rapidly changed. However, *rational* change strategy offers good potential for success in this situation. Rational change strategy assumes people are rational and that they will follow their self-interest. The reasoning here is that individuals will adopt and implement an innovation when they are persuaded that they stand to gain from it.

At the School of Journalism and Mass Communication, University of Oklahoma, we were dissatisfied with our progress in implementing PC technology. Although the School has three computer labs (one IBM and two Apple Macintosh), the integration of the technology into the School's missions was slow and haphazard. Subsequently, a faculty computer planning and policies committee was created and charged with the task of developing a comprehensive plan to speed our progress through this transitional state.

Our specific aim was to implement computer technology so that it supports all the School's missions as fully and effectively as possible, with the fewest possible delays. In this sense, the committee took on the responsibility of becoming a change agency, with the School and its faculty, staff, and students becoming change targets. And although each change strategy discussed above has its merits in a given situation, the computer committee's recommendations were based mostly on the rational approach to bringing about change among individuals and organizations.

Recognizing that the most influential barriers to successful implementation stem from the lack of personal abilities and motivation to use the technology, the core of the proposed change plan rests upon faculty development. The proposed plan is based on the belief that it is unreasonable to expect to bring about meaningful changes among individuals

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without changing the organization itself.

With this in mind, our committee recommended the creation of a computer support staff. The support staff would consist of a software specialist, an operations specialist, a hardware technician/engineer, and enough graduate assistants to staff the computer laboratories during open hours.

Although all the support staff positions are important, the software specialist bears the main responsibility of implementing the change strategy. As a regular member of the faculty, the software specialist would receive 0.5 FTE released time to perform several tasks, including software troubleshooting, software development, network management, and serving as a communication liaison with industry, professional, and campus user groups.

Transitional state

However, the software specialist's most important function involves faculty development and training. We believe the transitional state can best be managed by helping faculty members discover existing and innovative ways to use PC technology to achieve their instructional objectives. Thus, our rational change strategy is implemented in the following ways by the software specialist:

Faculty/Staff Workshops. The software specialist is expected to lead frequent workshops in the use of popular applications programs, *e.g.*, MicroSoft *Word*, Aldus *PageMaker*, Aldus *Persuasion*, etc. Beyond simply introducing faculty and staff to these applications, the workshops should focus on using the programs to meet the creative goals of individual faculty.

One-On-One Tutoring/Mentoring. The software specialist should provide one-on-one guidance for faculty, when needed. This individualized training represents another vital implementation component.

Innovation research has shown that adopters often give up and reject a technological innovation when they find it too difficult to use. The adoption of the home computer first failed mainly for this reason. We believe this type of support must be available. Otherwise, faculty members may not seek help because they feel they are imposing on other faculty members when they do. Furthermore, it is unrealistic to expect other faculty members routinely to put aside their own responsibilities to help others.

Training Library Development. The software specialist will work to develop a resource library of training materials and software. There are many good third-party books available on the most popular applications programs. In addition, some organizations are marketing software training programs on video tape.

In addition to the efforts described above, the software specialist has been directed to seek out off-campus training opportunities for the School's faculty. And, the computer committee has recommended that the School's administrators make a priority of helping faculty members in their efforts to develop the computer knowledge they want and need. This includes funds for travel to, registration for, and expenses during professional seminars, conferences, workshops, and training programs where appropriate computer technologies and applications are featured.

While many of us are doing exciting new things with the PC, we must recognize that others do not share our enthusiasm for the technology. The greatest potential for successfully managing the existing technology in mass communication education lies in the systematic application of rational change strategies. ❑

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