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Attitudes and Knowledge Perspectives of Administrators Necessary for Fostering the Adoption of Computer Technology in School Systems

by Dr. Maynard J. Bratlien

The phenomenal changes which were brought about in the world of technology due to the microchip have virtually revolutionized our thinking and our approaches to the tasks facing us in the workplace as well as in our personal lives. Microcomputers became available to us barely a decade ago, and at that entry point utilization potential seemed profound. Now, 10 years later, we find that very industry has gone through four or five "generations" of development and refinement, each one antiquating the previous advancements.

With the advent of microcomputers, perceptive educators began to see the tremendous potential for education which now seemed within the grasp of the individual professional as opposed to the prior mainframe computer technology which had primarily been reserved for large, intricate, and expensive operations within the bureaucratic domain of the central administration of the school system. Microcomputers meant decentralization, which in turn could foster creativity, whether in the realm of instructional or administrative uses of the technology. The impact the technology would have upon professional educators would be profound.

The ultimate focus of knowledge and skills in computer technology, as it relates to educational administration, will and should generally follow the pattern of administrative competency domains. Computer technology constitutes yet another of the many areas which the administrator will oversee in a management capacity, facilitating decisions for the organization relative to the extent of computer utilization in education, both in an immediate context and over a long-range period of time. The administrator will be the individual responsible for a plan to assess the needs and requirements for the technology as they relate to the goals and philosophies of the school system. In this capacity, planning and decision making will be necessary with respect to such issues as:

(1) Needs assessments
(2) Areas of utilization
(3) Software requirements
(4) Hardware/equipment requirements
(5) Training/inservice needed
(6) User/utilization audience
(7) Accessibility planning
(8) Maintenance and repair
(9) Building/facility requirements
(10) Security of hardware and software
(11) Need for specialized personnel

In order to function competently in an administrative setting where technology plays such an important role, both educational administrators currently in our school systems and those in preservice preparation programs will have the need for specialized understanding in two principal areas, (a) personal familiarity/understanding of computers, and (b) the general impact of computer technology on the total educational spectrum.

Personal Knowledge

The first of the aforementioned areas, personal computer literacy skills, serves to foster the adoption of computer technology generally by demonstrating in a very immediate sense the value(s) to be gained by the technology. If an administrator is able to see and experience the tasks and routines of his/her professional job alleviated by the technology, it is logical to assume that decisions relative to adopting computers for school administrative tasks will be much more readily forthcoming. Additionally, the sense of value gained from the technology in a personal sense will be more easily transferable to the needs and requirements of others. Therefore, team planning and decision making processes which send forth recommendations based on the need and importance of computer technology will be more likely to be embraced by an administrator who has developed an understanding of and a personal commitment to the technology.

Current computer software applications for educational administration typically follow a framework characterized by the following specific use areas:

(1) Wordprocessing
(2) Financial spreadsheets
(3) Database systems
(4) Graphics
(5) Networking

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Utilizing these applications, administrators are increasingly better prepared to make the many administrative decisions requisite for the smooth and efficient operation of their system or campus. Middle level administrators will be concerned with those applications which serve to catalog and organize data in such a way that it is easily accessible for planning and information purposes. Spreadsheets and databases facilitate recordkeeping with respect to students, teachers, inventories, lists, and budgets. Wordprocessing and graphics will provide the means of communicating these data to employees, students, parents, or central administrators. Central office administrators will utilize computers with respect to districtwide accounting and recordkeeping, long range planning via simulations and projection processes, and general public relations via wordprocessing and graphics. Recent advances and refinements made in the area of networking and electronic communication will allow administrators at all levels to bypass much of the "paperwork" burden which has plagued public and governmental enterprise far too long. Computerized electronic mail will provide an efficient and economical means to communicate with the many individuals and groups who impact the management of a school system.

The level of training necessary for administrators to gain personal familiarity with computers will approximate the level of training that is generally received in many of the other specialized tasks of administration. It should not be the intention that the typical administrator become a computer specialist, but rather they should have a sufficient overview and general understanding of the technology to feel comfortable and at ease in directing and overseeing roles as characterized by the administrative job function. A comparison could be made to many of the other specialized coursework offerings in typical administrator preparatory programs such as finance and law. In these areas it was not the intention that the administrator replace the lawyer or the CPA, but rather that there would be a sufficient level of understanding to allow for the oversight management of the enterprise. The administrator would be sufficiently conversant with computer technology to be able to facilitate planning and projecting activities as well as being able to adequately supervise staff employees who are more directly involved with the use of the technology. The mode of delivery of administrator computer training described here should follow a not-threatening, application-oriented format, allowing the novice administrator to gain quick, usable skills upon which can be built further understandings deemed necessary at a later time.

Impact on Education

The second area of concern for administrators' relates to an informed appreciation of the general impact which has already been felt in the world of education as a whole and which will continue in years to come. Administrators must realize the differences between computer assisted instruction (CAI) and computer managed instruction (CMI) and realize the proper setting for each. Drill and practice must be differentiated from tutorials and simulations, and menu-driven programs must communicate something meaningful to him, as must light pens, mice, icons, and sketch pads. Voice synthesizers and interactive vocal communication must be appropriately utilized. There must be a general understanding of the differences between dot printers, impact printers, and laser printers, and the appropriate settings for the use of each. The potential offered by hard disk storage, bubble memory, laser disk/computer interfaces, and other emerging technologies for the world of teaching and instruction must be explored and understood sufficiently to allow for informed and forward-looking decision making by those with administrative responsibilities. At the same time, administrators must realize that there is good software and bad software on the commercial market today. Informed decisionmakers will utilize personnel who understand the attributes of appropriate, educationally sound software and will make every effort to ensure that proper selections and choices will have been made which are consistent with the educational goals and outcomes desired.

Proactive Posture

With both a specific and a general understanding of computer technology, administrators will be equipped with important background information necessary for the infusion of computers into the educational enterprise for which they are responsible. However, another very important aspect for the success of such infusion efforts is found in the realm of personal commitment to the concept on the part of the administrator. The old cliche, " . . . as the principal goes, so goes the school . . . " is applicable here. Principals' attitudes very profoundly influence the directions taken by their campuses. Administrators must believe in, and be committed to, the concept of computer infusion. This belief must be spoken, it must be seen, it must be evidenced, by practice and deed. Whether in the course of faculty meetings, before the central administrative cabinet, or at the PTA, the principal must plan, promote, and publicize the benefits to be gained, educationally, by computer technology. The reticent and skeptical must be given special attention and consideration, and every effort should be seized to allay their doubts and suspicions. This enthusiasm for computers will emanate naturally and freely from the administrator who has taken care to plan and prepare himself/herself personally. For potential administrators, preservice programs should have coursework and hands-on training included in preparation requirements. For those administrators already in the field who may have missed the opportunity for skill development, every effort should be made to gain the necessary understandings and skills individually or by way of inservice programs.

The proactive posture should also be in evidence with regard to budgetary and funding requirements necessary to implement computers in school systems. Districts which are financially able, should be shown the benefits to be derived by having teachers and students involved with programs representing the "cutting edge" of educational innovation. They should be instilled with a justifiable sense of pride for having opportunities for providing their young people the "best" in this area. School systems which are not as wealthy should be convinced of the importance of the concept, and should be encouraged to make a commitment to a basic or entry level effort regarding the technology. In these settings, administrators should actively pursue outside funding to make up shortfalls of the local constituency. State and federal government support should be pursued where possible. Additionally, private individual and business support of the program should be actively sought. Many times, those commercial enterprises involved in the manufacture and/or merchandising of computer hardware and software will either donate their products, loan them for extended time periods, or sell them at substantial monetary discounts to educational institutions. Districts who have manufacturing firms located within their boundaries sometimes stand to gain particular advantage in the commercial benefactor arena. As mentioned earlier, the school administrator needs to be enthusiastic and should actively pursue

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such potential opportunity for low-cost software and hardware acquisition rather than waiting for others to promote and carry forward the infusion concept in his behalf.

Planning

The perceptive administrator who is planning to provide for the adoption of computer technology into the schools under his jurisdiction will be well aware of the proper management activities and postures necessary to accomplish the task. Two important concepts at work here are (a) involving others in planning and development, and (b) properly publicizing and promoting the project.

The first issue deals with the administrator's leadership style. Modern practice recognizes that authoritarian, top-down, unilateral decision making has been replaced largely by more democratic collegial approaches sometimes characterized as "team management." Very important for the success of computer infusion into schools is the practice of involving everyone who will be working with, or affected by the technology, an opportunity for participation in the planning and decision-making process. Teachers, campus administrators, and central office liaison representatives should become a minimum necessary representation on the planning committee. The planning committee should establish a realistic time line which will facilitate information gathering and time for weighing and deliberation relative to the issue(s) of concern. The planning committee should have a place and time conducive for conducting meetings. The administrator should assume a leader/facilitator role and provisions should be made for keeping accurate records of proceedings. The planning committee should be working from, or should if necessary, develop a written set of goals. This document would include a broadly defined purpose to be gained from the phase of computer infusion currently under consideration. It is understood that such goals would reference and be consistent with espoused educational philosophies and goals of the school system.

Data gathering should involve the assembling of all characteristics, features, and capabilities of proposed hardware and software acquisitions. Dealers and company representatives should be invited to make presentations and/or give demonstrations of their products. The planning committee should have an objective evaluation document at its disposal to rate each of the items previewed. Other activities might find the committee traveling to other school systems which already have made computer acquisitions to find out both the strengths and weaknesses of particular products, as well as gaining insights as to how another system has organized for computer utilization. Personnel from other districts are usually quite willing to offer suggestions and assessments as to how the acquisition process might have been better accomplished.

After the data have been assembled, the committee has the task of considering all possible contingencies and to derive several alternate sets of recommendations relative to both acquisition of equipment and implementation of the infusion plan. The alternatives suggested should be prioritized from most preferred to least preferred with respect to desirability and feasibility. In any such ordering of alternatives, it will be very important to secure direction from the central office administrator in charge of financial planning. Questions pertaining to the availability of local funds for the project will have an important effect upon later activities relative to planning for external funding for the effort. Related to fund accessibility perhaps, will be the need for the committee to consider the project in a number of phases, rather than in a single effort.

Once the committee has come to closure on the many decisions to be made, final recommendations should be assigned and printed in a concise, clear, cohesive, and attractive formal document. In the initial launching of the planning committee, its timeline should have included provisions for a formal, scheduled presentation of the completed report to central administration or the board of education. Assuming the recommendations are adopted in some manner, definite information should be sought relative to scheduled implementation and who will bear responsibility for this task. Another important item at this juncture is to ascertain whether computer-oriented education practices are addressed in the formal district policy document, whether at the board or administrative level. If policy seems to be absent, this moment might represent an excellent opportunity for an appropriate policy statement concerning computers in education to be accepted and adopted formally. With formal policy recognition, future efforts to expand and improve the system will be much more easily accomplished. A final management skill for the administrator in his/her dealings with the planning committee is to ensure that, according to previous planning, the committee ceases to exist after it has accomplished its purposes.

Conclusion

Consistent with the theme reflected throughout this writing, the adept administrator will publicize the (hopefully successful) results of the planning and implementation for the each phase of computer infusion. Recognition should be given to committee members who were diligent in pursuance of the collective task as well as to individuals and organizations who may have been responsible for financial contributions to the effort. Progress concerning the advantages and educational gains made as a result of a computer/technological orientation should be publicized periodically over an extended period of time.

In summary, the process of infusing computer technology into our school systems becomes an important leadership responsibility of administrators. Individual commitment and enthusiasm, fortified by personal knowledge and involvement of individuals will foster a climate in the classroom, the corridors, and the community which will serve as a catalyst for consciousness and commitment. The technology is with us—the dream is before us—the challenge remains.

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