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Minimizing employee resistance to computerized technological change

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Abstract

Productive change in America's schools is due to the efforts of individual teachers. Recent research on effective and ineffective schools identifies the individual teacher as the key to quality learning. If one assumes that the individual teacher is the catalyst for the creation of an effective learning environment, a support system should be built to encourage teachers in their efforts, Sybouts and Stevens (1986).

MINIMIZING EMPLOYEE RESISTANCE TO COMPUTERIZED TECHNOLOGICAL CHANGE

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Productive change in America's schools is due to the efforts of individual teachers. Recent research on effective and ineffective schools identifies the individual teacher as the key to quality learning. If one assumes that the individual teacher is the catalyst for the creation of an effective learning environment, a support system should be built to encourage teachers in their efforts, Sybouts and Stevens (1986).

Fortune and Hutson (1983) say the measurement of change can be considered from at least three major perspectives: conceptual, measurement, and statistical. While considering technical details within each of these perspectives, the authors asked questions like "What do I mean by change?"; "What method can I use to measure change if it occurs?" and "What will be the more appropriate and sensitive indicator of change?"

Waggoner (1984) maintains that modern technologies have challenged educators with such changes as the interactive cable data transmission and teleconferencing; and the staggering array of information technologies currently in place and projected have been receiving only slight attention among American education institutions. In addition, the dominant technology employed in teaching today continues to be the lecture. Waggoner asks, "Why do we still employ the lecture as the dominant technology in teaching?" He further states that there are several reasons but the predominant one was simply a predicatable resistance to any change. A second reason that

the lecture continues to dominate according to Waggoner was that until recently, technological alternatives had not been widely available or affordable.

Rose (1982) points out that educators are not using available instructional technologies as readily as they could. Rose elaborates that the three barriers most apparent to computerized technological change were, Institutional, Technological, and Administrative. Although Institutional barriers certainly come to the forefront when considering the economies of computer technology they do not have direct affect upon attitudes of individuals when dealing with change. Educators may feel dependent on the functioning of the device, with no control over its (embarrasing) failure. In addition educators may consider it too much bother to adapt course content to the technology, to manipulate the equipment, and/or prepare software. Also educators may have to change their teaching patterns to accomodate a particular system. They may feel incompetent if they do not have the skills necessary to use the technology. There may also be problems in availability, accessibility, and/or scheduling of equipment.

Administrative barriers that have a direct affect upon technological advancement are highlighted by Richards (1974) and Rose (1982).

1) Administrators and communications specialists, may over sell them. They show the efforts that went into producing the products.

2) There is generally administrative involvement in the

decision to invest in equipment. With heavy investment, administrators may feel educators must use the systems, and a forced situation results.

3) Many educators criticize their administrators, who they say often proclaim the desire for, and encouragement of innovation, but fail to support, appreciate, or reward their efforts.

4) Few institutions have systematic, controlled, or rigorous evaluation of results of the use of educational technologies.

5) Administrators may not demand of themselves and their faculties precisely detailed plans for using nontraditional educational technologies.

6) Institutional leaders do not focus the educator's attention on the attitudinal, learning, and motivational potentials inherent in the use of educational technology.

Purdy (1975) makes the following assertions about Educator's reluctance to use modern technological advancements.

1) Educators are inherently resistant. They know little about the potential or modern technologies and do not care to learn.

2) Educators may lack an understanding of the nature of the technology, and philosophical assumptions underlying its use, and its relevance to objectives and learning outcomes.

3) Technology is often perceived by educators as a threat to their jobs.

4) Educators may experience conflict between their ideals and self-interest/preservation.

5) A fairly generous time commitment is required for the development of quality programs using educational technologies.

Kerr (1978) explains that educators generally need the advice and help of educational communications specialists. In such a relationship, educators may have expectations of rapid production

and support from the specialist. When this does not happen, they often become disillusioned with the whole notion of using an alternative instructional approach. Also educators, in approaching communications personnel for help or advice, must (in effect) admit they are not competent at doing certain tasks. Some may be reluctant to do this.

Eggers and Wedman (1984) point out that schools caught up in the "numbers game" may have been victimized by the "computer bandwagon" syndrome. This syndrome is recognized by: 1) having no specified purpose for computers, just lots of them, 2) having large numbers of teachers unfamiliar with computer operations, while requiring teachers to pay their own tuition to gain the necessary skills, 3) having no concept of how to integrate computer technology into the curriculum but insisting that novice computer users serve on committees planning "computer literacy" curricula, 4) having little or no awareness of the potential problems associated with computer use, while devising schemes to secure more computers and increase computer use. Eggers and Wedman conclude, teachers are watching school administrators to see how committed they are to computer technology. They felt computer inservice training, funded by the school, would be a real indicator of such support and commitment.

Benson (1984) and Markert (1984) explained that inequitable distribution of a new learning capacity demands thoughtful action. Further it seems that inservice education be provided to educate professionals to the benefits and appropriate applications of

technology. Furthermore a broading of a perspective beyond our progmatic concerns and beyond some of our traditional views of highly structured learning must occur to be more consistent with the current and emerging technological capacities being infused into our learning environments. School leaders should encourage their instructors to introduce classroom activities and assignments designed to heighten their student's awareness of the impact of technological advancement on their daily lives. Markert (1984) and Benson (1984) felt departmentalized suggestions might help to reduce the resistance that teachers feel toward technological implementation.

1) English teachers could assign essays that pertain to contemporary technological issues and focus on technical writing format and style.

2) Social Studies teachers might allow their students to become involved with local police force operations for a short time.

3) History instructors could introduce the concept of appropriate or intermediate technology as it relates to critical events in the history or technology.

4) Science educators should assume a finer focus on present-day scientific issues and controversies (e.g., silicon chip fabrication, recombinant DNA, fusion power, artificial intelligence, etc.).

5) Mathematics teachers could discuss topics related to computerized checking accounts and information systems, inflationary trend analysis and projection, statistical analyses, computer logic and programming, and the development of personal budgets.

6) Industrial educators should provide a liaison between the educational environment and the area's industrial-technological structure.

Gerhold, Kidd, and Holmes (1980) made the claim that in some

applications, computer-assisted instruction increased student-teacher interaction, insofar as the teacher then had more time to devote to individual students. The computer also provided a unique opportunity to solve some of the problems of the remedial student. It served as a tireless, constantly available tutor, that helped students who entered a program with certain deficiencies. In some systems it even diagnosed those deficiencies.

Diem (1984) stated that most teachers in today's schools have not had training or background in computer technological literacy, usage, or adaptation. Although circumstances are changing as colleges of education and stage certification requirements are revised to include at least a cursory discussion of these topics in preservice education programs, most currently-employed K-12 educators have not had a semi-introduction to current technological innovations. Until a entire college-aged generation completes preservice teacher education programs that include computer literacy and application course-work as part of training requirements, ongoing developmental inservice activities must begin to help those teachers already in classrooms use the new technology in a rational, effective manner.

Diem (1984) felt that the type of training that teachers needed was premised on four main ideas: 1) Technological literacy was non-course-specific, 2) training emphasis must be on curriculum development rather than on program development, 3) criteria for evaluating software application, by grade and subject level,

must be influenced or embedded within instructional objectives of particular disciplines.

Parker (1985) said that since teacher support was essential if a computer education plan was to be implemented, the plan must nurture that support from the beginning. Thus, a good plan will make it easy for the teachers to learn about and use computers, to become informed, comfortable, confident, and enthusiastic. Parker (1985) continued to point out, a good plan will leave room for different teachers to try different approaches, to experiment, to see what works for them. It will not limit but rather provide a framework that can be expanded as the teachers develop computer skills, as the needs of the student change, and with advancements in computer technology.

Parker (1985) concludes, that it would not help to accept uncritically every computer-based item on the market. The bandwagon attitude is causing some teachers to make use of computers in inappropriate or ineffective ways. Using a computer as an electronic flash card or page turner is a waste of its capabilities; computers should not be used for instructional tasks that can be done as well with a notebook. Use a workbook or a computer for those activities for which it is well suited.

According to Sybouts and Stevens (1986) and Weller and Wolfe (1985), development has been woefully lacking in many school districts. Evaluation has also received little or no attention. If technology is to be used for the instructional program

it would be well to give consideration to what is known regarding learning theory, the advantages and disadvantages or precautions with respect to using computers, the psychology of managing change, and what might be expected in new technological developments. Educators must reach agreement on basic assumptions in order to have a common base of understanding from which all parties can work with an acceptable degree of internal consistency.

Weller and Wolfe (1985) explain that some type of computer will be used daily in 25 percent of the typical classrooms within this decade. While the preliminary effects of computerized instruction on student achievement appear quite promising, many teachers are hesitant to cross the threshold of the computer age and actively incorporate computers into their instructional repertoire.

The principal must motivate teachers to acquire the knowledge necessary to incorporate the use of computers into the curriculum. The following six-step planning model described here is a condensed version that will help administrators in assisting teachers in developing computer skills and in gaining the confidence to introduce computer technology into the curriculum, (Weller and Wolfe, 1985).

Step 1) The essential first step in developing an effective partnership between teachers and computer technology requires a familiarization with the components of the computer itself. The principal can demonstrate the immediate value of computers through such school-related applications as scheduling and keeping attendance records.

Step 2) If "quality assurance" is to exist, teachers not

only need to feel secure about using the computer, they also need to understand its specific application to their subject matter areas.

Step 3) Administrators must acquire parental and community support. Fostering positive attitudes to the instructional mission of the school must be a primary consideration if computers are to become an essential part of the curriculum.

Step 4) Administrators should match software with the curriculum. Because software is the heart of the computer, familiarization with existing programs and procedures for their selection and evaluation is necessary.

Step 5) When introducing computers into the classroom a systematic approach must be used. Computer implementation must be done systematically because both staff and students need to develop a level of confidence in working with the computer.

Step 6) Administrators must develop evaluation procedures for computerized instruction. The first step in software evaluation is the teacher's critique of the instructional program for its overall compatability with previously identified goals and objectives.

Weller and Wolfe (1985), Sybouts and Stevens (1986), and Telem (1984), conclude that through staff development activities and by utilizing the peer teacher concept to facilitate instruction, the administrator enhances the credibility of the program and provides teachers with concrete examples for applying computerized technology to their particular content area. Schools are rapidly and massively adopting computer technology, but teachers and school administrators lack background and training in the computer field. Two training programs should be provided, one for teachers and one for administrators. The training system should be coordinated with other institutions that train teachers and educational administrators.

This integrated effort will result in effective and systematic use of the computer for instruction and administration in schools.

Fahy (1984) stated that positive student response to computer-managed instruction, and increased motivation among formerly unsuccessful and discouraged students, will demonstrate to open-minded staff the merits of computer-based learning. The need for sensitivity enters at the point where staff are invited to learn about and participate in their developments, hopefully with nerve at the prospect of an exciting new challenge.

Duttweiler (1983) acknowledges that of the three barriers to successful computer implementation 1) State of the Art 2) Lack of knowledge and Skills 3) And The Present Governing Structure; the latter of the three will present the most difficult hurdle. Teacher's organizations cannot be expected to view with favor any proposal that might reduce the number of professionally certified teachers in a system. The use of paraprofessionals to monitor classrooms in which content was delivered electronically will meet with resistance. Accreditation standards, state department of education regulations, and rules implemented to provide students with some assurance of an adequate education. These same standards, regulations, and rules, however, prove to be barriers to an optimum use of educational technology in the schools.

Scanland and Slattery (1983) conclude that teacher's inherent resistance to computer adoption, which current research data substantiates, is a recoil from a pervasive phenomenon in the finale

of our Twentieth Century, "Unigenerational Transformation." Unarguable is the fact that the rate of technological development far outstrips the culture's adoption rate. With world economies shifting their resources from an industrial to an informational model, corporations, industries, organizations, and institutions no longer have the luxury of a present generations grooming of the next for the implementation of the sciences progressive creations. Today, the new economy demands change be accepted implemented, and refined within the lifespans of the workers currently in the market.

In closing, Scanland and Slattery make the assertion that teachers appear reticent to change as quickly as their business/ industrial counterparts. Teachers made their career choices based on the learning environments of their youth. Unlike other professionals who entered their domain at the higher education echelon, teachers vicariously entered theirs in Kindergarten. Understandably, 20 years of modeling was not easily extinguished. Computer technology to them was a betrayal of those long ago weekends spent playing school, dreams of center stage with pristine, and alabastor chalk.

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