University of Northern Iowa
UNI ScholarWorks

Graduate Research Papers | Student Work

1997

Technology leadership in education

J. David Louk
University of Northern Iowa

Let us know how access to this document benefits you

Copyright ©1997 J. David Louk
Follow this and additional works at: https://scholarworks.uni.edu/grp

 Part of the Education Commons

Recommended Citation

Louk, J. David, "Technology leadership in education" (1997). *Graduate Research Papers*. 2822.
https://scholarworks.uni.edu/grp/2822

This Open Access Graduate Research Paper is brought to you for free and open access by the Student Work at UNI ScholarWorks. It has been accepted for inclusion in Graduate Research Papers by an authorized administrator of UNI ScholarWorks. For more information, please contact scholarworks@uni.edu.

Offensive Materials Statement: Materials located in UNI ScholarWorks come from a broad range of sources and time periods. Some of these materials may contain offensive stereotypes, ideas, visuals, or language.

Technology leadership in education

Abstract

This paper examines the area of technology leadership in education in grades K-12. More specifically this paper addresses the importance of sound technology leadership and the various elements necessary for effective leadership in this area. Technology leadership can come from a variety of sources. One of the most common sources for district technology leadership comes from technology/ computer coordinators. More progressive school districts (K-12) are even establishing technology departments/ offices. The literature also strongly suggests that the technology leadership for a district needs to be derived from multiple levels possibly including: school board members, administration, teachers, and community members (Durost, 1994; Kearsley and Lynch, 1992).

This open access graduate research paper is available at UNI ScholarWorks: https://scholarworks.uni.edu/grp/2822

Technology Leadership In Education

A Graduate Review
Submitted To The Division Of Educational Technology
Department Of Curriculum And Instruction
In Partial Fulfillment Of The Requirements For The Degree
Master Of Arts In Education

University Of Northern Iowa

By

J. David Louk

December 1996

This Review by: J. David Louk

Titled: Technology Leadership In Education

has been approved as meeting the research requirement for the Degree of Master Of Arts In Education.

January 28, 1997
Date Approved

Sharon E. Smaldino
Graduate Faculty Reader

January 29, 1997
Date Approved

Sharon E. Smaldino
Graduate Faculty Reader

Jul 5, 1997
Date Approved

Sharon E. Smaldino
Head, Department of
Curriculum and Instruction

TABLE OF CONTENTS

CHAPTER I

Introduction

Background

This paper examines the area of technology leadership in education in grades K-12. More specifically this paper addresses the importance of sound technology leadership and the various elements necessary for effective leadership in this area.

Technology leadership can come from a variety of sources. One of the most common sources for district technology leadership comes from technology/computer coordinators. More progressive school districts (K-12) are even establishing technology departments/offices. The literature also strongly suggests that the technology leadership for a district needs to be derived from multiple levels possibly including: school board members, administration, teachers, and community members (Durost, 1994; Kearsley and Lynch, 1992).

According to Durost (1994), a high school principal in Maine, successful technology integration in education is dependent upon these four related factors: 1) coordinated planning with input from sources with differing levels of expertise, 2) on-going training of teachers and administration, 3) central office support, and 4) a responsible person or persons with the desire, available time, and expertise to coordinate and direct all efforts.

Leaders of technology for school districts can assume several different forms. At the present time, most schools are being led into technology use by teachers that may have some expertise in one or more areas, and an interest in being progressive or helping others (Kearsley and Lynch, 1992). But these

teachers have no time designated in their job description for strictly district or building technology concerns. Sometimes school districts will assign technology matters on a part-time basis to teachers that have a high level of interest and/or experience with technology and allot them a certain number of hours or class periods daily for technology-related tasks such as: training, troubleshooting, installing and maintenance. The schools that have more financial capabilities and/or are more progressive tend to employ at least one individual to be a technology coordinator or director. This person usually oversees all educational technology matters including: training, purchasing, consulting, installing, etc. Just recently, there has been a movement in larger school districts to create a district technology office or center with a staff of individuals to handle the technology needs of the district.

There seems to be a continual argument, or point of question, among educators regarding what positions are sufficient for sound technology leadership in schools. Some say that this leadership must come from administrators, while others prefer to have the leadership come from teachers or technology specialists. Kearsley and Lynch (1992) suggest:

> One important point to observe about these levels [referring to five different levels stated earlier in the article including: state, district, principals, teachers, and technology specialists] is that leaders do not have to be administrators. In fact, much instructional technology leadership comes from teachers who have informally accepted responsibility for encouraging and supporting teachers, students, and staff in their use of technology. There are advantages and disadvantages to this kind of "grass roots," or bottom-up, type of leadership. The main advantage is that such leadership is driven by

> genuine convictions and first-hand experience. The main disadvantage is that this kind of leadership can be very idiosyncratic and limited by the parochial interests of the particular individuals involved (p.54).

Regardless of the level of this leadership, structure and coordination plays a very critical role in the success of instructional technology.

Statement Of The Problem

The purpose of this study was to identify and justify the need for established and defined technology leadership in educational institutions at the elementary and secondary school levels.

Research Questions

1) How important is it for educational institutions to have designated technology leaders?
2) What traits should these individuals possess?

Definitions

Technology can be defined in numerous ways. Muffoletto, (1996) defines the term as "various hardware and devices as well as software." Technology commonly is referred to as computer equipment and software, but it encompasses much more. For example, laserdiscs and players, television, video equipment, calculators, audio equipment, copier machines, and FAX machines also will be considered technology for the context of this paper.

Leadership usually involves managing, influencing, and coordinating

the efforts of others. According to Dede (1993), leadership is exemplified by the following four attributes: 1) leadership requires envisioning opportunities, 2) leadership requires displacing cherished misconceptions, 3) leadership requires inspiring others to act on faith, and 4) leadership requires discouraging followers, instead encouraging use of their vision as a foundation for other, better insights.

CHAPTER II

Review Of Literature

As technology becomes more and more prominent in education, the need for informed, productive, and experienced leadership will continue to increase. It is not enough anymore to have teachers with full class loads also be responsible for coordinating the use and implementation of technology, including: purchasing, staff training and development, curriculum integration, etc. There are so many aspects of technology that must be addressed that school districts cannot afford to not have full-time staff members solely responsible for all aspects of technology integration.

This review examines the importance of having designated technology leaders within educational institutions. In addition, information and suggestions from experts in the field of educational technology regarding traits of technology leaders will be reviewed.

Kaplan and Rogers (1996) summarized the situation quite realistically when they made the statement: "School districts are rushing to spend billions of dollars on computers. It's not clear they have a clue what to do with them" (p.60). Regardless of how much money a district spends, it will never be enough if it is not spent appropriately. The acquisition of computers and other forms of technology is not enough. To ensure their proper use, teacher training and staff support is critical (Pack, 1994).

For starters, many teachers do not know how to effectively implement the so-called 'new gadgets' into their classrooms. Richard White, technology administrator for Chicago's schools is quoted in an article by Kaplan and Rogers, (1996 p.60). "All over the country overhead projectors sit on shelves because a bulb burned out and nobody knew how to change it." Teachers will

have to get as comfortable with computers as blackboards or it all will be a waste of money." If we step back in time, it was not that many years ago that blackboards were considered 'technology' and teachers needed to be taught methods to use them effectively. Now, using a blackboard (or whiteboard) is a given, just as using today's present forms of technology will be one day.

In an article by Van Horn (1995) the inability of American education systems to handle the influx of technology is discussed in great detail. He states that America's technological shame is further magnified by the fact that schools readily buy machines but seldom hire people to tend them. This lack of leadership and coordination is severely limiting the capability of technology to enhance students' learning.

Administration needs to value technology integration as much as the teachers. In a recent study (Knezek and Thomas, 1991) participants voiced a need for adequate facilities, hardware, software, and technical support to promote effective use of technology in restructured schools, but they consistently identified technology training in teacher and administrator preparation as the overwhelming need for actually making technological innovation a reality in our schools. An important correlation to the administrator preparation is the present fact that the schools that are leading the way in technology have administrators who are progressive in its use. Most teachers realize the value and importance of integrating technology into their curriculum, but they are unable to explore methods to do this in addition to everything else that is required of them.

Technology can be used in many different departments of a school system. Each area needs to utilize what is appropriate for their needs. More specifically, there are many ways that technology can improve the

administrative operations of a school system or individual school (Bluhm, 1987; Kearsley, 1990). Examples include optical test-scoring systems that speed up grading: student registration and class-scheduling systems that minimize the effort required in these tasks: word-processing and desktop-publishing systems that reduce the time and costs of producing letters, reports, and proposals; and highly specialized software for monitoring building heating, managing food preparation, or generating optimal bus routes (Kearsley and Lynch, 1992).

Technology leadership is inherently linked to innovation, and this provides unique considerations. While leadership usually involves dealing with change, technology leadership deals almost exclusively with new procedures, policies, and situations (Kearsley and Lynch, 1992). A critical element in technology leadership is the ability to develop and articulate a vision of how technology could produce changes (Cory, 1990). Technology leaders must know what population to work with and then, through a combination of managerial skills, personal communication, and influence, "lead" the way to a visionary reality (Kearsley and Lynch, 1992).

Kearsley and Lynch (1992) outline five potential benefits to education institutions that incorporate good technology leadership:

- improved academic achievement by students
- improved student attendance and reduced attrition
- better vocational preparation of students
- more efficient administrative operations
- reduced teacher/staff burnout and turnover. (p.54)

They also show in contrast some of the common problems associated with technology use in education that can be attributed to poor technology

leadership:

- lack of knowledge about how to use technology (resulting in ineffectual usage)
- lack of adequate time or funds to properly implement technology
- use of technology for its own sake rather than genuine need
- unequal access creating "have" and "have-not" groups
- poorly designed facilities resulting in limited access
- poor instructional results resulting in negative attitudes about technology
- overt resistance on the part of potential users. (p.55)

Spiffy new hardware is only one small part of an equation that includes computer-literate teachers and user-friendly software (Pack, 1994). Schools and administrators need to make informed decisions regarding technology, and they must have selected staff members with the ability and time allowed to make this use of technology sound. Technology must be integrated to provide our children with the richest experiences possible.

It is evident from the available references that much more research should be done in the area of technology leadership. More specifically, research needs to be done analyzing the advantages of school districts having full-time technology directors/coordinators versus the disadvantages of having only part-time coordinators.

CHAPTER III

Conclusions And Recommendations

Conclusions

The objective of this review was to identify and justify the need for established and defined technology leadership in educational institutions at the elementary and secondary school levels. Furthermore, information from the experts in this field regarding designated technology leaders and their personal traits was reviewed.

The literature overwhelmingly supports the need for educational institutions to have a formal structure of technological leadership being derived from several levels of expertise including: administration, teachers, specialists and community members (Durost, 1994; Kearsley and Lynch, 1992).

Secondly, the designated technology leaders in school districts must possess technical expertise as well as a desire to continually investigate and incorporate new and emerging technologies, and be given appropriate time to do so. In addition, technology leaders must be able to develop, articulate, and execute technology plans and visions (Cory, 1990; Dede, 1993; Durost, 1994; Kearsley and Lynch, 1992; Knezek and Thomas, 1991).

Thirdly, several of the experts state that on-going teacher, staff, and administration training/support from designated technology leaders is essential for successful integration of technology in education (Durost, 1994; Kearsley and Lynch, 1992; Knezek and Thomas, 1991; Pack, 1994).

Recommendations

1) Technology leadership in education must come from individuals designated as the "leaders" who are knowledgeable in numerous forms of technology, and have time and finances available to them to investigate and explore new and existing forms of technology.

2) With numerous forms of technology emerging in the field of education, the Department of Education should require each school district have on staff a certified Technology Director/Coordinator who has earned a Master of Arts degree in educational technology or a closely related field, and met requirements established by the state.

3) More research needs to be conducted in the area of technology leadership analyzing the positive benefits for school districts which employ full-time technology directors/coordinators.

REFERENCES

Bluhm, H. (1987). Administrative uses of computers in schools. Engelwood Cliffs, NJ: Prentice-Hall.

Cory, S. (1990). Can your district become an instructional technology leader? The School Administrator (Special Issue On Technology), 17-19.

Dede, C. (1993). Leadership without followers. The Computing Teacher, 20, 6, 9-11.

Durost, R. (1994). Integrating computer technology: Planning, training, and support. NASSP Bulletin, 78, 563, 49-54.

Kaplan, D. & Rogers, A. (1996). The silicon classroom. Newsweek, 77, 17, 60-61.

Kearsley, G. (1990). Computers for educational administrators: Leadership in the information age. Norwood, NJ: Ablex.

Kearsley, G. & Lynch, W. (1992). Educational leadership in the age of technology: The new skills. Journal of Research on Computing in Education, 25, 1, 50-60.

Knezek, D. & Thomas, L. (1991). Providing technology leadership for restructured schools. Journal of Research on Computing in Education, 24, 2, 265-279.

Muffoletto, R. (1996). Technology And Education course modules, University of Northern Iowa.

Pack, S. (1994). Teacher training is key. BYTE, 19, 11, 366.

Van Horn, R. (1995). Power tools. Phi Delta Kappan, 76, 5, 420-421.