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ADVANCING PROFESSIONALISM IN TECHNOLOGY EDUCATION

Editors
Anthony F. Gilberti
David L. Rouch

48th Yearbook

Council on Technology
Teacher Education

1999

Advancing Professionalism in Technology Education

Editors

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YEARBOOK PROPOSALS

Each year, at the ITEA International Conference, the CTTE Yearbook committee reviews the progress of yearbooks in preparation and evaluates proposals for additional yearbooks. Any member is welcome to submit a yearbook proposal, which should be written in sufficient detail for the committee to be able to understand the proposed substance and format. Fifteen copies of the proposal should be sent to the committee chairperson by February 1 of the year in which the conference is held. Below are the criteria employed by the committee in making yearbook selections.

CTTE Yearbook Committee

CTTE Yearbook Guidelines

A. Purpose:

The CTTE Yearbook Series is intended as a vehicle for communicating education subject matter in a structured, formal series that does not duplicate commercial textbook publishing activities.

B. Yearbook topic selection criteria:

An appropriate yearbook topic should:

1. Make a direct contribution to the understanding and improvement of technology teacher education.
2. Add to the accumulated body of knowledge in the field.
3. Not duplicate publishing activities of commercial publishers or other professional groups.
4. Provide a balanced view of the theme and not promote a single individual's or institution's philosophy or practices.
5. Actively seek to upgrade and modernize professional practice in technology teacher education.
6. Lend itself to team authorship as opposed to single authorship.

Proper yearbook themes *may* also be structured to:

1. Discuss and critique points of view that have gained a degree of acceptance by the profession.
2. Raise controversial questions in an effort to obtain a national hearing.
3. Consider and evaluate a variety of seemingly conflicting trends and statements emanating from several sources.

C. The yearbook proposal:

1. The Yearbook Proposal should provide adequate detail for the Yearbook Planning Committee to evaluate its merits.
2. The Yearbook Proposal should include:

a. An introduction to the topic
b. A listing of chapter titles
c. A brief description of the content or purpose of each chapter
d. A tentative list of authors for the various chapters
e. An estimate of the length of each chapter

PREVIOUSLY PUBLISHED YEARBOOKS

*1. *Inventory Analysis of Industrial Arts Teacher Education Facilities, Personnel and Programs,* **1952.**
*2. *Who's Who in Industrial Arts Teacher Education,* **1953.**
*3. *Some Components of Current Leadership: Techniques of Selection and Guidance of Graduate Students; An Analysis of Textbook Emphases;* **1954, three studies.**
*4. *Superior Practices in Industrial Arts Teacher Education,* **1955.**
*5. *Problems and Issues in Industrial Arts Teacher Education,* **1956.**
*6. *A Sourcebook of Reading in Education for Use in Industrial Arts and Industrial Arts Teacher Education,* **1957.**
*7. *The Accreditation of Industrial Arts Teacher Education,* **1958.**
*8. *Planning Industrial Arts Facilities,* **1959. Ralph K. Nair, ed.**
*9. *Research in Industrial Arts Education,* **1960. Raymond Van Tassel, ed.**
*10. *Graduate Study in Industrial Arts,* **1961. R. P. Norman and R. C. Bohn, eds.**
*11. *Essentials of Preservice Preparation,* **1962. Donald G. Lux, ed.**
*12. *Action and Thought in Industrial Arts Education,* **1963. E. A. T. Svendsen, ed.**
*13. *Classroom Research in Industrial Arts,* **1964. Charles B. Porter, ed.**
*14. *Approaches and Procedures in Industrial Arts,* **1965. G. S. Wall, ed.**
*15. *Status of Research in Industrial Arts,* **1966. John D. Rowlett, ed.**
*16. *Evaluation Guidelines for Contemporary Industrial Arts Programs,* **1967. Lloyd P. Nelson and William T. Sargent, eds.**
*17. *A Historical Perspective of Industry,* **1968. Joseph F. Luetkemeyer Jr., ed.**
*18. *Industrial Technology Education,* **1969. C. Thomas Dean and N. A. Hauer, eds.;** *Who's Who in Industrial Arts Teacher Education,* **1969. John M. Pollock and Charles A. Bunten, eds.**
*19. *Industrial Arts for Disadvantaged Youth,* **1970. Ralph O. Gallington, ed.**
*20. *Components of Teacher Education,* **1971. W. E. Ray and J. Streichler, eds.**
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*22. *Industrial Arts in Senior High Schools,* **1973. Rutherford E. Lockette, ed.**
*23. *Industrial Arts for the Elementary School,* **1974. Robert G. Thrower and Robert D. Weber, eds.**
*24. *A Guide to the Planning of Industrial Arts Facilities,* **1975. D. E. Moon, ed.**
*25. *Future Alternatives for Industrial Arts,* **1976. Lee H. Smalley, ed.**
*26. *Competency-Based Industrial Arts Teacher Education,* **1977. Jack C. Brueckman and Stanley E. Brooks, eds.**
*27. *Industrial Arts in the Open Access Curriculum,* **1978. L. D. Anderson, ed.**
*28. *Industrial Arts Education: Retrospect, Prospect,* **1979. G. Eugene Martin, ed.**
*29. *Technology and Society: Interfaces with Industrial Arts,* **1980. Herbert A. Anderson and M. James Benson, eds.**
*30. *An Interpretive History of Industrial Arts,* **1981. Richard Barella and Thomas Wright, eds.**
*31. *The Contributions of Industrial Arts to Selected Areas of Education,* **1982. Donald Maley and Kendall N. Starkweather, eds.**
*32. *The Dynamics of Creative Leadership for Industrial Arts Education,* **1983. Robert E. Wenig and John I. Mathews, eds.**
*33. *Affective Learning in Industrial Arts,* **1984. Gerald L. Jennings, ed.**
*34. *Perceptual and Psychomotor Learning in Industrial Arts Education,* **1985. John M. Shemick, ed.**
*35. *Implementing Technology Education,* **1986. Ronald E. Jones and John R. Wright, eds.**
*36. *Conducting Technical Research,* **1987. Everett N. Israel and R. Thomas Wright, eds.**
*37. *Instructional Strategies for Technology Education,* **1988. William H. Kemp and Anthony E. Schwaller, eds.**
38. *Technology Student Organizations,* **1989. M. Roger Betts and Arvid W. Van Dyke, eds.**
*39. *Communication in Technology Education,* **1990. Jane A. Liedtke, ed.**
40. *Technological Literacy,* **1991. Michael J. Dyrenfurth and Michael R. Kozak, eds.**
41. *Transportation in Technology Education,* **1992. John R. Wright and Stanley Komacek, eds.**
42. *Manufacturing in Technology Education,* **1993. Richard D. Seymour and Ray L. Shackelford, eds.**
43. *Construction in Technology Education,* **1994. Jack W. Wescott and Richard M. Henak, eds.**
44. *Foundations of Technology Education,* **1995. G. Eugene Martin, ed.**
45. *Technology and the Quality of Life,* **1996. Rodney L. Custer and A. Emerson Wiens, eds.**
46. *Elementary School Technology Education,* **1997. James J. Kirkwood and Patrick N. Foster, eds.**
47. *Diversity in Technology Education,* **1998. Betty L. Rider, ed.**
48. *Advancing Professionalism in Technology Education,* **1999. Anthony F. Gilberti and David L. Rouch, eds.**

* Out-of-print yearbooks can be obtained in microfilm and in Xerox copies. For information on price and delivery, write to Xerox University Microfilms, 300 North Zeeb Road, Ann Arbor, Michigan, 48106.

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PREFACE

An overarching purpose of the Council on Technology Teacher Education is to support and further the professional ideals of technology education. Through the activities of the Council, it strives to provide professional development information and activities for its members. Council members, committees, and officers work together to design workshops, write monographs, and publish yearbooks which transmit new ideas and theories related to technology education teacher preparation and assist members and others in education to better understand and implement technology education in our schools.

This yearbook was designed and written to assist in advancing professionalism within technology education. All professionals should realize that they need to continue to have spiritual renewal concerning both their thoughts and practices related to technology teacher preparation and program implementation. As society changes, so should the technology we teach and the practices we use in the preparation of teachers and programs to be implemented in our schools. Reflection and self renewal is needed by professionals so that they can provide improved education for the citizen living in a technological age.

Through this year's Council Yearbook, editors Anthony F. Gilberti and David L. Rouch have collected the best thoughts for enhancing professionalism in technology education. In the 48th Yearbook, titled *Advancing Professionalism in Technology Education*, the writing team have further explored the nature of professionalism and its contributions to individuals and technology education program enhancement. No longer can our profession allow its members to receive initial teacher preparation and then not to update their teaching content or practices. Continually, we must have our educational perspectives refocused and renewed.

In this yearbook, members of the Council have integrated the ideals of professionalism and leadership. They have explored concepts and strategies for improving professional growth. Work of associations have been viewed as major contributors for providing

professional development to their members. The politics of public relations also have been examined.

Professional development problems have been reviewed at the primary, secondary, and higher education levels in technology education. Leadership roles in professional development have been explained. Planning for and establishing a professional culture has been the theme of this yearbook.

The editors and the Council believe this Yearbook will stimulate thought and guide future research and enhancement activities in technology education professionalism. As we work within technology education for the professional renewal of its members, our school subject will continue to prosper. Technology educators will better understand their school subject, become more energized about its potential, and develop those networks needed to increase their professional development. The technology education profession extends its thanks to the editors and authors for the contributions that have been made through this yearbook.

John M. Ritz
President, CTTE

Section 1

The Need for Professionalism in Technology Education

Chapter 1

The Need for Professionalism in Technology Education: Challenges for the Future

Anthony F. Gilberti

Indiana State University

The purpose of this chapter is to illustrate several of the important challenges and opportunities available to technology educators. These challenges and opportunities require personal commitments to leadership and developing the necessary skills to influence the educational community. A foundation for leadership is thinking about the future, establishing a vision and mission, and clearly articulating these to key constituents. The challenges and opportunities presented in this chapter provide a direction for leaders and professionals in the curriculum area of technology education.

Decisions for the Future

Educators, community leaders, and governmental policymakers face fundamental decisions about what is taught in schools. These decisions have numerous consequences on students, educational professionals, and society. In fact, these decisions can have a serious long-term impact on the overall type and quality of education that students receive. Since the outcomes of these decisions are far-reaching in developing an educated or "cultured individual," there is a greater need to develop clear expectations and outcomes with regard to facilitating curriculum.

If the above statements are true, then technology educators have a number of significant challenges to face in the near future if they are to deliver the education required in a technologically based society. First among these leadership challenges is the need to foster the study of technology at all levels of society.

Technology as a Core Subject

Technology is more than a social force in society. Throughout history, people have created and used technology to better their lives or to meet their many needs. Scholars point to the fact that in the history of humanity, the use of technology has become a defining characteristic of human survival. The technology used by a society determines the nature and patterns of work. It influences leisure time activities and modes of entertainment. Further, technology shapes the organizations of business and industry and alters basic beliefs of what is valued at both a personal and social level. Yet despite our dependence on technology, it can be correctly stated that very few people have the necessary knowledge to understand how it is developed, integrated into society, or assessed (Bensen, 1995; Wright, 1995).

Here is the opportunity to correct a historic error in education, and technology educators must step up to this challenge. For a variety of reasons, education has consistently treated the study of technology as an inferior subject. The study of mathematics has been part of the liberal arts tradition since the earliest periods of formal education. Likewise, science was studied early in the form of astronomy and music. For the past one hundred years or so, educators have acknowledged the cultural significance of theoretical science even for nonscientists. However, most educators have consistently dismissed the importance of technology, often treating it as a form of applied science.

The above view is slowly being challenged by a greater number of educators, engineers, social thinkers, and technologists (e.g., Branscomb 1981; Bybee, 1986; Cutcliffe, 1985; DeVore, 1987; Friedman, 1980; Gies, 1982; Layton, 1971; Shamos, 1982; Weaver, 1987). In the view of these individuals, technology is a field of study in its own right. It has a knowledge base, a set of inquiry methods, and disciplines within it.

Technology educators must passionately and intellectually convince the larger educational community of the importance of studying technology. They must illustrate that it is not possible to gain a clear understanding of technology by studying science or the humanities alone. An understanding of technology requires a bal-

anced knowledge of the sciences, the humanities, and technology. In this form of education, all students as part of their "general" or "liberal arts" experience should become knowledgeable about both the power and limitations of technology. As the American Association for the Advancement of Science (1993) noted:

> The task ahead is to build technology education into the curriculum, as well as use technology to promote learning, so that all students become well informed about the nature, powers, and limitations of technology. As a human enterprise, technology has its own history and identity, quite apart from those of science and mathematics. In history, it preceded science and only gradually has come to draw on science—knowledge of how the natural world works—to help in controlling what happens in the world. (p. 42)

Since many of the public policy issues involve technology, it is reasonable to expect all students to have an understanding of technological development and the relationship between humans and the environment. These same students should have a basic understanding of the technological devices and systems they use every day. This type of knowledge should also include the problem-solving skills used to assess and diagnose the consequences of technological innovation or failure. Recently, the Technology for All Americans Project (ITEA, 1996) illustrated this point when writing about the need for technological literacy:

> Indeed, technological literacy is vital to individual, community, and national economic prosperity. Beyond economic vitality is the realization that how people develop and apply technology has become critical to future generations, society, and even the Earth's continued ability to sustain life (p. 6).

Lastly, students studying technology should recognize that the development of knowledge is directly influenced by technology. As technologists help to meet human needs and wants with inventions and innovation, they contribute to an ever-growing knowledge base.

The opportunity to influence general or liberal education in this country should not be missed. With the nationwide movement focused on educational reform and the creation of standards, technology education has a key role to play in the core curriculum and educating a cultured individual.

Developing a Research Agenda

A second major leadership challenge faced by technology educators is to successfully establish a research agenda that improves teaching and learning. As McCrory (1987) and Zuga (1994) noted, there has been little change in the practices of the curriculum area as a result of the research taking place. Research in the curriculum area has had a narrow focus often concentrating on the status of the field or curriculum development. To correct this situation, technology educators need to conduct action-based research in a number of areas. These areas should include:

- the relationship of laboratory-based instruction and learning
- how learning about design and innovation leads to individual creativity
- the role of guided discovery to improve problem-solving skills
- developmentally validating content and methods of instruction
- appropriately matching student ability levels to laboratory-based instruction
- how technology education enables students to succeed in post-secondary education or develop requisite career skills
- the proper use of curriculum integration and interdisciplinary teaching
- the dimensions of technological literacy
- authentic assessment techniques
- expanding the current curriculum

Educating Future Teachers

A third challenge for technology educators will clearly center on finding qualified teachers in the future. The best curriculum requires innovative and qualified teachers to successfully motivate students to learn. To put it simply, qualified technology educators are hard to find. The strong economy and expanding career potential of college graduates has led to sharp declines in teacher education programs. Like many other school subject areas, technology education is currently facing a difficult challenge in finding replacement teachers who will be retiring in the next five years. Some might even suggest that we are quickly approaching a critical period in our history should we not find the replacements needed in the very near term. Daugherty (1996) illustrated this problem when he wrote:

> The urgent need to recruit, prepare and retain significantly more successful teachers in technology education is clear and is evidenced in a variety of ways. At the same time the population of teachers entering the field is decreasing, the number of teaching opportunities and the number of secondary students enrolling in technology education programs is increasing. The problem is particularly acute when one considers the number of professionals who annually retire or leave the discipline to take jobs in industry. The low number of individuals entering technology education teacher preparation institutions threaten not only post-secondary programs, but the very fabric of the profession through the closing and consolidation of programs. (p. 3)

Strong leadership is needed to counteract the lack of pre-service teachers entering post-secondary institutions across this country. While the International Technology Education Association can help to promote the need for future teachers, it cannot recruit or make the personal connections needed to fill university classrooms with pre-service teachers.

College and university professors teaching pre-service teachers must actively recruit potential education majors across their cam-

pus and within their regional community. These educators must become adept in illustrating the advantages and career satisfaction of their profession. Moreover, these educators must work more directly with elementary, middle school, high school teachers, and administrators to encourage our best and brightest to enter the teaching profession.

College and university professors must also clearly articulate the need for future educators in the popular press. The newly acquired pre-service teachers should also be supported by the implementation of new licensure patterns, mentorship programs, scholarships, or tuition reimbursement. Leadership in these areas will result in the acquisition of teachers for the curriculum area.

Developing a Political Agenda

A fourth challenge for technology education is to take advantage of the current political climate. Technology educators as a group have not used political advocacy to their advantage. Thus, the curriculum area has only minimally benefited from national or state legislation.

The political climate is changing however, and there appears to be a greater recognition for the need of technology education programs. This recognition is leading to increased opportunities for funding, curriculum integration, support from other national associations and academies, initiatives to improve teaching and learning, and state mandates for inclusion of the subject matter into the core curriculum at the K-12 level. The development of content standards by the Technology for All Americans Project (ITEA, 1996) is illustrative of this support at the national level.

Leadership is needed by technology educators to capitalize on this window of opportunity. This will require individuals to develop a greater awareness for the need of political advocacy. These individuals must become skilled in making political connections and helping to identify opportunities in the political arena. This type of leadership will go far in providing the level of support and commitment needed to improve technological understanding in society.

Curriculum Development and Teacher In-service

The content areas of technology education are also in need of leadership to develop new curriculum and provide in-service education at the state and national levels. It was not that long ago that universities were the major players in developing new curricula or providing teacher in-service. Today, however, university professors appear to have little time or inclination to provide these much-needed services. This may be due in part to declining departmental budgets, staff reductions, loss of student enrollment, or simply from being overworked from the new pressures of tenure and promotion guidelines.

With the development and release of content standards for technology education, there will be an even greater need for new curricula and professional in-service. The standards being developed by the Technology for All Americans Project are both realistic and visionary for our curriculum area. The visionary nature of these standards will require the development of field-tested tools to guide educators in writing and implementing curricula that promotes technological understanding. This will require more than simply adding or subtracting instructional units in a haphazard method. What is needed is a coordinated K-12 plan that guides curriculum development and allows for state and local variation.

In a similar fashion there is a need to provide leadership in pre-service and in-service teacher education. These needs are likely to be diverse in relation to the newly developed content standards and future curricula development. Areas of pre- and in-service education are likely to address areas of assessment, curriculum integration, teaching methodology, and resource utilization. Universities could again become the major players in both curriculum development and teacher in-service.

Summary

Technology educators have numerous challenges and opportunities in their immediate future. To capitalize on these challenges and opportunities will require a newfound commitment, vision, and passion for teaching students to understand technology. Developing personal leadership to meet these challenges is both desirable and highly valued in an environment predicated by change. Technology education is in need of strong leadership—leaders who can effectively communicate a shared vision and passion for the study of technology and a direction for the future.

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Defining Professionalism and Leadership

Chapter 2

Professionalism and Leadership in Technology Education

David L. Rouch

Ohio Northern University

The purpose of this chapter is to develop the concepts of professionalism and leadership as applied to common past practices within various professions, organizations, and social institutions. Also, this chapter will investigate professionalism and leadership roles and provide a vision of the future for the technology education profession.

Professionalism and leadership are two terms that are active topics in the Business Management and Organizational Development sectors. The idea of being a professional is about conducting one's business with excellence in an ethical and faithful manner.

Being a leader is not about title or position. It is about influence and modeling. As one becomes a professional who exhibits service to others and excellence in carrying out duties in one's life, leadership will be the natural result. People have to want to follow the person out front. Therefore, that person must be respected in order to influence others to follow. "Whoever is faithful with little, will also be faithful with much" is a wise saying that sums up what takes place in the move from professionalism to leadership. In other words, if one acts in a professional manner, leadership responsibilities will follow. The essence of leadership is that when you are out in front and others imitate or follow you, you are a leader.

As was stated earlier, professionalism and leadership seem to be active topics in today's business, industry, and service world. This is demonstrated by the many books, magazine articles, and seminars that flood the market on these topics. Much of this literature results from a sharing of effective leadership and professional-

ism practices that have resulted in prosperity for these people in their respective job roles. Sharing the secrets of success and the methodology for leading companies into change are often the focus of such literature.

In the technology education profession, there are those who have previously exhibited leadership and those who presently are creating positive change. These people should also be viewed in terms of their successes and effective leadership. Such leaders and professionals in the technology education profession have good practices to emulate in the change process. With curricular changes, acceptance of technology teaching methodology by education theorists, and a subject matter increasingly gaining acceptance as a core subject, there are new opportunities for growth. To take advantage of this opportunity, it is important that the technology education profession has a constituency that is committed to their profession and who set high standards of practice and excellence. What are the standards that have served other professions so well, and what are the common expectations for the technology profession that will push the field into the forefront of education? The goal of this chapter is to provide answers these questions.

The Concept of Professionalism

What is professionalism? We each have people in mind that played a major role in our becoming a technology educator. It is likely that these people were "professionals" whom we admired. It may have been one of our junior or high school teachers, a parent, a teacher educator, or a colleague. But what is it about them that has so influenced us in our career?

Professionalism is a term that connotes high praise when used to describe the actions of an individual acting professionally. On the other hand, to say someone is acting unprofessionally is "the most damning epithet hurled at politicians, financiers, and athletes by their enemies" (Sullivan, 1995, p. 3). Professionalism is derived from the term "profession" and has its roots advanced from the advent of professions. According to Sullivan (1995), the first occupations that held the title of being a profession were the ministry, medicine, and law. The ministry is the oldest of these and was

responsible for the development of the university system in the United States. The Greek word for ministry means "to serve" and is an important aspect of all professions that followed.

In contemporary society, professional status has been a loosely defined term. In some ways, it is felt that anyone who carries a briefcase to and from their job is a professional. This qualification may not be too far-fetched as described by Sullivan (1995):

> The bearer (of a briefcase) holds an occupation sufficiently responsible that work is not confined to a production shift or opening hours. Carrying a briefcase advertises that its bearer commands ample amounts of the rarest form of credit: autonomy in work. Asserts that the person can be counted upon to do the job without direct supervision, out of the shop, and at off-hours. (p. 1)

Vocations that claim professional status and are regularly listed as having the highest status are: medical doctors, lawyers, architects, clergy, dentists, college professors, and architects. What makes it proper to label these occupations as professions? Certainly, financial reward and respected status are part of the formula, but there are several vocations with much more financial reward than these professions. Regardless of salary amount, the following features are typical of all professions: (1) Specialized training in a field of codified knowledge usually acquired by formal education and apprenticeship, (2) Public recognition of certain autonomy on the part of the community of practitioners to regulate their own standards of practice, and (3) A commitment to provide service to the public which goes beyond the economic welfare of the practitioners (Sullivan, 1995, p. 2).

Characteristics of a Profession and Professionalism

An even more generalizing way to capture the essence of why a profession exists is stated by Sullivan (1995): "A profession is 'in business' for the common good as well as the for the good of its members, or it is not a profession" (p. 5). Common good refers to

unfailing service to others, i.e., customers. Without customers to serve, whether clients, students, or colleagues, there is no need for a profession.

According to Meltzer (1996), professionalism is a matter of training. To others, it's the golden rule for business behavior. He states the ideal professional: (1) Sees his or her own code of ethics as a minimum level of professional conduct, (2) Strives to preserve his or her discipline's public image through giving speeches or writing articles, teaching or mentoring, and (3) Continues to keep current with the latest developments in his or her profession through continuing education (Meltzer, 1996).

Professionalism is not a set of competencies but predominantly an attitude; a real professional is a technician (one who knows their work) who cares. One who has a bad attitude about their work is not a professional.

Historical Perspectives of Professionalism

Where do these perceptions of professionalism come from? A brief look at the evolution of professions and the role of influential leaders on professional life will provide a background on professionalism. At the onset of the founding of the United States and the democratic ideals embraced with a new form of government, there were new opportunities for individuals to jump to other levels of social classification. A primary route for this to take place was through education. Thomas Jefferson, an architect of the United States Constitution, felt that the well-being of a democracy required the education of a knowledgeable group of leaders trained through a public-supported education system. These individuals would naturally serve the democracy well with a high degree of commitment to public service and an appreciation for their free education. Jefferson felt this would provide the path for any citizen to develop themselves into social/political leaders and to being contributing members of society (Sullivan, 1995).

Another influence on professionalism was Andrew Jackson's policies that gave rise to "free professionalism." This idea stressed that one should be able to "hang up a shingle" to be a profession-

al. As time passed, social acceptance of the person's ability to perform, their reputation, and ability to serve the public became important (Sullivan, 1995).

Another individual who influenced professionalism in the United States was Abraham Lincoln. Lincoln stressed that hard work in a profession should be a main part of the preparation for a profession. "Sweat to Wit" as he called it, (Sullivan, 1995, p. 38) was what it took for a person to gain the knowledge, experience, and wisdom to become a competent member of a profession.

Frederick Taylor brought about a philosophy of professionalism that required a higher degree of competence in one's calling. This brought together the need for specific training in the best of professional practices *and* a consideration of one's calling rather than Jacksonian-type professionalism.

As can be seen, the preparation for a profession has changed with time. Learning a profession from one's parent became an outdated practice. "How someone prepared for a job became at least as important as how well he actually did" (Fallows, 1989, p. 131). Thus, universities began to standardize requirements for degree programs and gave students the training in the profession they needed. Specialized baccalaureate and graduate degree programs became the "gatekeepers" for entrance into professions.

This has created some problems in the professional front. According to Sullivan (1995), the "snobbery of professionalism" has become a result of specialized training. The snobbery of professionalism minimizes a person's life calling and places a priority on their career choice. Thus, people are choosing degree programs and professional careers considered safe and dignified rather than one they are called and committed to perform. As a result, professions have tended to be more self-serving with a "Yuppie" mentality than with the ideals of conscientious hard work and service to others. Many of the well-educated, middle-class, American workforce classified as professional and managerial, seem to be losing concern about their fellow citizens as they struggle to keep up with occupational changes that offer them advantageous positions (Sullivan, 1995).

A Contemporary Model of Professionalism

As knowledge increases in any professional field, it stands to reason that more education is required to prepare one for entrance into that profession. This has led to increasing requirements over the last 100 years in all professions. For example, in the medical profession, scientific knowledge of disease has increased. This requires the instruction in different diseases to increase. This also requires the professionals to obtain additional practice in these auxiliary areas. An increase in the knowledge base also requires specialization since there is only so much knowledge a person can be competent in or retain. In education, it used to be that teachers only needed a minimal education. Later, 1- and 2-year degrees were the norm. Today, at least a 4-syear baccalaureate degree is required, with some universities (i.e., Holmes group institutions) pushing for the master degree level.

Since there is more knowledge to be taught in an individual field of study, the affective domain of professionalism is often left behind. In recognizing the problems arising from this, several professions, Law (Murray, 1998), Computer Programmers, (Professionalism and Quality Issues, course syllabus, 1997), Engineers (Johansson & Ohlsson, 1993), and Business Administrators (Hubbard, 1996) are holding conferences and workshops, providing certification, and offering courses as part of preservice degree programs. Each of these efforts are designed to encourage a professional attitude among their constituency.

Another method of trying to increase professionalism is by attracting the best and the brightest into the profession. Hutto (1994), *Tomorrow's Teachers* (Holmes Group, 1986), and the National Board of Professional Teaching Standards note that an increase in the status of teachers is important to attract the best people into the profession. It is felt that recruiting the academically gifted and talented into the teaching profession will automatically result in an increased level of professionalism. A pitfall with this is that some who are not necessarily the most academically gifted often become some of the best teachers and conscientious professionals.

The "quick-fixes" of conferences, workshops, or courses dealing with professionalism seem to be the trend, but are there better ways to ensure professionalism among new graduates? Mentoring is catching on in the educational field as one method that shows promise. However, mentoring is not new, just a forgotten way of passing on wisdom from generation to generation. Homer tells us that when Ulysses left for the siege of Troy, he asked his friend Mentor to watch over his son Telemachus. Mentor acted as teacher, friend, and surrogate father to Telemachus throughout the 20 years Ulysses was away. One benefits from the mentor's experience without having to go through the trial and error of learning those same lessons with time. Valuable lessons, knowledge, attitudes, and recognition of opportunities are passed on with mentorship (Smith, 1997).

Part of the value of mentoring is that "more is caught than is taught." A class, workshop, conference, or other short-term event aimed at fostering professionalism is not as effective at understanding and shaping attitudes. Fostering a professional culture (Devier, 1999), being aware of a person's strengths, deficiencies, and attitudes, and providing help in those areas are most effectively done in a mentoring atmosphere.

Gaining Professional Attitudes and Values

Although much of what it takes to be a professional involves knowledge, a critical ingredient is having the right attitude. Attitudes and values possessed by individuals are the critical link missing in those not acting as professionals. Maister (1997) wrote: "Real professionalism is about attitudes, and perhaps even about character" (p. 18). Attitudes seen as important in the literature can be classified as commitment to service, excellence, integrity, and humility character traits. A sampling of comments made relating to these attitudes is listed as follows:

1. *Attitude of service*—Deliver products or services of good quality on time, and for the expected price. Commitment involves both keeping promises and to avoid making promises that cannot be kept (Johansson & Ohlsson, 1993). The reason we are in a profession is to serve others.

2. *Attitude of maintaining excellence*—Don't ever do anything as though you were an amateur. Anything you do, do it as a professional to professional standards. Never let it be said of you that you lived an amateur life (Hubbard, 1996). "The same qualities that distinguish excellence in other fields also distinguish outstanding teachers. These qualities are embodied in the word 'Professionalism.' Tenacity, the intention to strive for excellence and not give up, is the hallmark of excellent teachers" (Sanders & Eberhart, 1994, p. 71).

3. *Attitude of high integrity*—Integrity, ethics, competence, personal efficiency, and best practice should serve as guides for professionals (Professionalism and Quality Issues, course syllabus, 1997).

4. *Attitude of Humility*—The mark of a professional is one who knows and accepts his or her limitations. When we don't have the answers our clientele needs, we find someone who does (Professionalism Means Quality, online: http://www.ncc-cpa.com/profess.html). Other characteristics of a humble attitude include a concern for others (above our own needs), being tolerant of others' shortcomings and differences, supportive of other people's dignity, and willing to work together through a wide spectrum of vital associations. Collegial relationship is important, i.e., work is naturally collaborative and academic disciplines are fundamentally interrelated.

Mentoring can be time-consuming and not possible with large numbers of individuals. Sanders and Eberhart (1994) suggest three phases for teacher development for encouraging professionalism among teachers:

> *Preservice preparation*: A professional preparation program gives teacher candidates the theoretical and academic base from which to launch a teaching career.
>
> *Extended clinical training and assessment*: Teacher candidates experience a prolonged clinical phase of preparation as an internship, during which they receive a beginner or conditional license. As an intern, the novice teacher has

opportunities to experiment with different teaching practices and models. The assessment of the intern's performance is the basis for licensure. This phase continues at least through the first or second year of actual teaching and concludes when the intern successfully demonstrates teaching knowledge and skills sufficient for a regular license.

Continuing education: Continuing education occurs throughout teachers' careers, enabling them to stay up-to-date. After several years of competent service and professional growth, teachers should gain recognition through an advanced certification process. (p.71)

Throughout the above process, the development of the right attitudes should be a major concern. Teachers must be confronted with attitude problems. Sanders and Eberhart (1994) put it well when they stated: "Like students, teachers grow and learn through doing. As teachers confront themselves and examine their practices, self-awareness is essential to change and growth" (p.71).

Defining Leadership

Duke (1974) has reported that the term leadership has been invoked so frequently by contemporary writers that it is easy to conclude that the phenomenon is essential and ubiquitous. While this may be true, any one definition of leadership falls short of describing the full essence of the term. Maxwell (1993) wrote that in its simplest form, leadership is the ability to obtain followers. This makes sense when one considers the simple concept of the game of "follow the leader." The person out front is the leader, and those behind are the followers. The person out front influences the followers in what they are to do. In the same way, an effective leader is one who influences others to follow. Two aspects are required for one to be considered a leader: 1) There is a job that needs to be done, and 2) there is a group that is needed to accomplish the work (Brown, 1998). If there is no job to do, no leadership is needed. If no more than one is required to do the job, there is no need for leadership.

The most popular theory of leadership is the path-goal theory. The path-goal theory of leadership suggests that in order to produce desired results, certain tasks must be performed. The results are the goal; the tasks are the path. When appropriate, rewards should be provided to the individual. The role of the leader is to: 1) Ensure that the path toward the goal is understood by subordinates, 2) Reduce barriers to achieving the goal, and 3) Increase the number of personal payoffs to subordinates for attaining the goal (Dinkmeyer & Eckstein, 1996). To gain a clearer understanding of these ideas it may be helpful to look at two closely associated concepts, leadership and management.

Are Leadership and Management the Same?

While some believe leadership and management are the same, others disagree with this notion. Maxwell (1993) wrote that management is the process of assuring that programs and objectives of an organization are implemented. Leadership, however, has to do with casting a vision and the motivation of people. Vision is the key difference in these statements. According to Smith (1997), "a leader is a person who inspires people to take a journey to a destination they wouldn't go to by themselves" (p. 69). To illustrate this further, Smith quoted Napoleon who stated: "Troops can't be managed into battle. They have to be led" (p. 69). Effective leadership involves the use of management, but management practices alone will not get the job done. To see the difference between management and leadership, Smith (1997) provides the following comparisons:

Manager:
Carries out planning and budgeting
Oversees organizing and staffing
Follows orders
Controls and solves problems
Maintains control and order
Protects status quo
Writes memorandums
Follows rules and regulations

Leader:
Charts a course providing direction
Provides guidance and counsel
Encourages people to follow their example
Motivates and inspires
Creates an environment for change
Builds relationships and trust
Trains and teaches
Questions rules and regulations
(Smith, 1997, p. 71)

Others, such as Drucker (1995); Kempton (1995); and Kouzes and Posner indicated that following effective management practices is what it takes for leadership. They wrote that one does not have to be a contagious, enthusiastic, or charismatic person to be a gifted leader. They believe that the steady, efficient effort of a manager will lead individuals into a productive result.

Myths of Leadership

The simple definition of leadership given earlier in this chapter is often confused and made complicated with some common misconceptions. It is important to have a clear picture of leadership in order to develop leaders in the technology profession. Following are a few of the myths of leadership:

Myth #1: *Leadership is a rare skill*—Leadership is about influencing others to follow. Everyone influences someone, and everyone is a leader in some way (Maxwell, 1993). Influence is a skill that can be developed. Leaders are everywhere, there are scout leaders, sports team leaders (coaches), community leaders, world leaders, education leaders, political leaders, religious leaders, business leaders, etc. Each of these individuals has groups of people who are following their lead to accomplish the goals of the group.

Myth #2: *Leaders are born, not made*—All seem to agree that leadership abilities can be learned. Murphy (1996) has developed an instrument to measure leadership IQ. His book builds on the leadership IQ notion and prescribes methods for improving leadership abilities in the different areas critical to leading. According to Kouzes and Posner (1995) "Leadership is certainly not conveyed in

a gene, and it's most definitely not a secret code that can't be understood by ordinary people. Contrary to the myth that only a lucky few can ever decipher the mystery of leadership, our research has shown us that leadership is an observable, learnable set of practices" (p. 16).

Myth #3: *Leaders are charismatic*—Drucker says this about the effective leaders he has known: "The one and only personality trait the effective ones I have encountered did have in common was something they did not have: they had little or no 'charisma' and little use either for the term or for what it signifies." (Hesselbein, Goldsmith, & Beckland, 1996, p. xii). All too often the ones with Choleric personality traits are considered the ones who should be the leaders. However, it is often the Phlegmatic or Melancholy personality type who is better at getting the leadership job done.

Myth #4: *Leadership exists only at the top of an organization*—In tomorrow's organization, there will be no non-leaders. "To label a person (or even think of them) as such will be to limit unnecessarily their ability to contribute" (Heil, 1995, p. 7). This is an important truism that all individuals in the technology profession need to realize. Just because they do not hold a leadership position does not mean that they should not be heavily influencing their students, schools, and communities for developing technological literacy.

Myth #5: *The leader controls, directs, prods, and manipulates*—According to Kouzes and Posner (1995):

> Flesh and blood leaders know, however, that the more they control others, the less likely it is that people will excel. They also know that the more they control, the less they'll be trusted. Leaders don't command and control; they serve and support. (p. 16)

Losoncy (1995) stated that an effective leader is one who encourages. The motivating team leader uses people's natural instincts of wanting to grow, contribute, belong, and explore new ideas as the way to get production out of people. Along with this, Losoncy (1997) noted that leadership involves the development of the team concept where a synergism occurs to accomplish more than individuals could ever achieve.

The Practices of Leadership

Effective leadership requires the development of certain practices. According to Murphy (1996), it is essential to select the right people, connect them to the right cause, solve problems that arise, evaluate progress towards objectives, negotiate resolutions to conflicts, and heal the wounds inflicted by change. These practices allow the leader to protect their cultures from the perils of crisis and synergize the stakeholders in a way that enables them to achieve improvement. Murphy (1996) described seven guiding principles for an effective leader: (1) be an achiever, (2) be pragmatic, (3) practice strategic humility, (4) be customer-focused, (5) be committed, (6) learn to be an optimist, and (7) accept responsibility.

Kouzes & Posner (1995) indicated that the following practices are the key to effective leadership: (1) Challenge the process, (2) Inspire a shared vision, (3) Enable others to act, (4) Model the way, and (5) Encourage the heart. To accomplish these practices, the leader must be willing to make the following commitments:

1. Search out challenging opportunities, to change, grow, innovate, and improve.
2. Experiment, take risks, and learn from the accompanying mistakes.
3. Envision an uplifting and ennobling future.
4. Enlist others in a common vision by appealing to their values, interests, hopes, and dreams.
5. Foster collaboration by promoting cooperative goals and building trust.
6. Strengthen people by giving power away, providing choice, developing competence, assigning critical tasks, and offering visible support.
7. Set the example by behaving in ways that are consistent with shared values.
8. Achieve small wins that promote consistent progress and build commitment.

9. Recognize individual contributions to the success of every project.
10. Celebrate team accomplishments regularly. (Kouzes & Posner, 1995, p. 18)

As one looks at the practices listed in this section, it can be seen that leaders are ones who are able to encourage others to follow for the good of the team.

Becoming a Leader

How does one get into a leadership role? One does not study leadership and instantly become a leader. On the contrary, leadership is developed with time and commitment. Leadership starts by being responsible. As time passes, leaders will demonstrate that they are responsible for taking care of the things under their control. The more responsible a person is, the more leadership is entrusted to them.

Professionalism and leadership for technology education is the real need at this time in the life of the profession. How well we excel in these areas will write the future for our profession. Ritz and Myers (1992) identified 12 characteristics for the technology education profession to strive for in the near future. These were: (1) knowledge based upon scientific theory, (2) service orientation, (3) standards of education and training, (4) long socialization periods, (5) licensure, (6) boards overseeing members of the profession, (7) adequate income, power, and prestige, (8) free of lay evaluation and control, (9) norms of practice, (10) strong identity with the profession, and (11) terminal occupation. Ritz and Myers (1992) further encouraged members of the profession to work collectively in the groups necessary to make these happen and to be influential in making technology education a subject vital to the economic success of our nation (p. 5).

Daiber and Valesey (1997) also believed the establishment of a professional attitude is critical to establishing a positive image of technology teachers. They stated: "Professional development and growth are essential qualities to a positive teacher" (p. 25). Daiber and Valesey went on to write that a clear vision of the role of tech-

nology in the school curriculum is important to having a positive image. "Professional growth can occur through networking with colleagues, involvement in professional associations such as ITEA, and participation in school committees" (Daiber & Valesey, 1997, p. 25).

Creating a vision for the future might best be accomplished by using benchmarking procedures utilized by business and industry. Benchmarking is used to compare one institution's practices with other institutions to find areas of improvement or best practices. Companies that want to become "world class" companies, strive to emulate the practices of world class companies through benchmarking. One possible avenue for developing a clear vision for the technology profession would be to benchmark current practices with other similar organizations that are recognized as world class. The benchmarking process could shadow other successful professions in the United States or other places in the world as guiding benchmarks for the technology education profession.

Summary

While much of what has been written in this chapter is not new, it does represent a call to service that is becoming increasingly uncharacteristic in today's society. Taking one's career seriously and working for the common good of all needs to be the capstone of one's calling. This chapter is about being a "doer" and not just speaking the things that makes one look good in the profession.

This chapter has attempted to develop the fundamental concepts of professionalism and leadership. It can be seen that the responsibility of all in the technology education profession is to act professionally by giving of themselves to serve others. As one acts professionally and develops themselves to the best of their ability, they *will* influence others. The essence of leadership is that a task needs to be accomplished and that a group is needed to accomplish the task. This is clearly the case in the technology education profession. The task at hand is to make technological literacy available to all people in society. To this end, all technology education professionals must do their part to encourage others to follow.

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Chapter 3 Conceptual Explanations of Leadership

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MOST PROFESSIONALS FEEL THEY KNOW THE ESSENTIAL TRAITS AND CHARACTERISTICS OF GOOD LEADERS. AFTER REVIEWING THE MYRIAD OF LEADERSHIP THEORIES, MODELS, AND STUDIES WE SHOULD HAVE SOME SERIOUS DOUBTS ABOUT WHAT WE THINK WE "KNOW." (COOMER, 1983, P. 55)
FOUR THINGS PEOPLE WANT MOST FROM THEIR LEADERS: DIRECTION, TRUST, HOPE, RESULTS. (GRAHAM, 1996)

In stark contrast, as reflected in these two quotes, is the uncertain evolvement of leadership as an area of study as compared to defining the characteristics of a leader and how that person performs. The two terms, leadership and leader, differ in that leadership represents the breadth of field, while the leader must be specific and inspirational in deliberation.

Because of the information explosion and the communication revolution, any human endeavor is challenged to be more productive with less and changing resources in a shorter time span. The punch-the-clock routine has yielded to the electronic "log in" and "log out" scenario via the pager, computer, and cellular telephone. Teachers, administrators, engineers, designers, contractors, etc., are making the forced swing to more quicker communication techniques that eliminates (or at least modifies) the routine office setting. What effect could this have on leadership? How could people be led in such a rapidly paced society?

This chapter provides a selected review of the major approaches to the study of leadership and the leader. It examines some tenets that each professional in technology teacher education should consider. Additionally, this chapter illustrates leadership theories, traits beneficial to leaders, leadership models, and leadership styles.

Leadership Characteristics

According to Warren Bennis (Graham, 1996), what most people want from their leaders is: 1) *Direction*—to have a purpose, conviction, strong point of view; 2) *Trust*—ability to trust a leader is more important today than in recent history; 3) *Hope*—people do not follow deep thinking pessimists: leaders kindle the fire of optimism; and, 4) *Results*—all hype fades quickly while "short-term successes keep our compass pointed toward a vision" (p. B4).

Illustrations from military situations do not always blend or match with civilian concerns except for when one looks for behaviors in the most trying of circumstances. The following question-type approach suggests the reader assumes a battlefield encounter to formulate responses.

What causes a group of infantry to follow their leader up a hill (let's say, Mount Suribachi, or Pork Chop Hill) to take a strategic position under heavy ground fire that could mean a high risk of injury or death? Could it be the *courage* displayed by the leader, or is it *orders*? The infantry is expected to follow regardless of the consequences. Is it *blind admiration*? People often follow a leader due to their faith and respect in that person. Could it be a *devotion to duty*? Many individuals will commit to a task to shoulder their patriotic duty. Is it a belief of being *invincible*? In some way the ordeal will be survived without becoming a casualty. Or perhaps is it *resignation*? Well, if I get hit, it was my time to go anyway. These italicized attributes have been understood by the military for years, long before the leadership paradigm was codified (Bass, 1996, p. 2). Although the educational setting is not as dramatic as the battlefield, the illustration serves to point out that the same kind of characteristics prevail in numerous environments.

In 1985, the Federal Aviation Administration working in conjunction with the Canadian Department of Transportation, identified five hazardous attitudes or characteristics and formatted them into a personality self-assessment questionnaire for licensed pilots and pilots-in-training. The five were: macho image, anti-authority, invincibility, invulnerability, and resignation. Reactions varied when

aviators learned the results. Many did not think they were capable of the predominate trait identified. These, of course, are negative attitudes and are not desirable of a leader. That is why they are presented here. Assuredly, there are other negative, harmful attitudes to avoid, and potential leaders should self-assess themselves in order to emulate the kind of leaders they desire to become. So, in subtle ways, both positive and negative traits are found in every endeavor of leadership.

A leader must be consistent (so people know what to expect) and continuous (always ready, always vigilant, dependable, semper fi) with an effulgent quiet power of command, no matter the duration. The attitude of never give up, as voiced by Churchill in his stirring address to London's House of Parliament after the Battle of Britain, is the kind of staying power meant here. Every leader must possess this type of consistent power of command whether it is learned, imbued, God-given, or developed. Questions often arise in leadership training: "how is it obtained?" "how do you recognize it in different people acknowledged as leaders?" and "how do you put labels on the most desirable of traits?" The answers to these questions can be found by reviewing some of the characteristics of leaders.

At this point it is necessary to briefly point out the difference between leadership and management. Bellman (1986) identifies the difference when he reported that leadership requires a devotion to duty, a vision, discipline, and an impassioned attitude. Management, on the other hand, seeks completion of goals based on criteria set by a higher authority (pp. 4, 5). A good leader is tough and firm but also tendered with cooperation, care, and understanding. Understanding another person's plight yields greater "mileage" down the road, rather than establishing roadblocks to a good relationship. Just because an activity is labeled "dead line" sensitive (management notion), it might not be to others. Many people would label "cooperation" as the bridge builder (leadership notion) to longer, more pleasant relationships that lead to greater benefits in the future.

Leadership-Style Theories

Researchers and writers between 1950-1965 classified all leader behavior into one of three styles. These styles were: a) autocratic, b) democratic, or c) laissez-faire. The autocratic style contains the idea that: "I am the leader so I am responsible in making decisions." The democratic style joins in with the group to make the decision after everyone has considered the input—a method of participatory leadership (the same term used in management styles as well). The last style of leadership, laissez-faire, says leave well enough alone. "If you don't bother me, I won't bother you." It allows each member of the group to "float" on their own. This style of leadership has its pitfalls because the goals and objectives of an organization are difficult to achieve without collective direction and unified purpose.

Another type of leadership style, the management grid, requires the leader's allegiance to one of two major responsibilities (Blake, Moulton, & Williams, 1981). These responsibilities are task-accomplishment and a people (or worker or follower) orientation. Coomer (1983) supported both responsibilities as part of good leadership, and the following illustrates this perspective. A task to be accomplished is the reason an organization exists. Without people to put their effort into meeting the task, the job would go undone. Task responsibility and people orientation are required for successful leadership, and a leader can't have one without the other.

Fiedler and Chemers (1974) obtained inconclusive results regarding task versus people in improving organizational performance. Blake and Moulton's (1981) research also found the task and people variables independent of each other in improving organizational performance. The apparent conclusion seemed to lie in the effectiveness of the leader in a variety of situations. Where the leader might be highly effective in one situation, like a people-oriented approach, they might not have been able to bring the task to successful closure.

Certainly, leadership is an intangible commodity fashioned with various structures, impinging attitudes, and touched by a number of entities to affect a solution or task. Leaders often operate as

fluid, flexible, and capable persons accepting a variety of approaches in order to achieve a successful outcome.

One could surmise that leadership has two very broad orientations. These orientations include:

1. The *relationship-oriented* leader uses a democratic approach and allows workers/followers to remain in the decision-making loop. The democratic leader does this while the autocratic or dictatorial type leader leads the group in the decision-making and evaluative stages.

2. The *task-oriented* leader makes the decisions alone—the worker's only function is to implement those decisions but not evaluate, thereby being excluded in the feedback loop.

Aspects of Leadership Behavior

Current economic trends have forced streamlining in the workforce, and this has influenced productivity. These trends have a direct bearing on leadership styles in both the corporate setting and in education as well. The economic axiom that seems to be in place is to produce more with fewer people. Additionally, there is a need to produce in a shorter time span and with a lower cost factor to yield higher returns. Disheartening as this might be, the earlier long-term employees are all but gone. With this model, much experience and expertise is lost compounding the leader's situation with increasing re-acquainting, re-training, re-adjusting, and re-orienting problems. American companies do not appear to be as loyal to employees as they once were (O'Toole, 1989, p. xviii).

While the golden parachute was designed as a self-indulgent severance package for corporate executives looking after themselves, the silver parachute represented a company owner's retirement and benefits package for his or her employees. The leadership traits that endeared employee devotion to duty and productivity were care and loyalty—the leader cared for and was loyal to his or her workers. These leadership traits are gradually being lost among large corporations. Also, there appears to be a similar same mind-set with a vast number of employees. These employees are simply not swearing allegiance to a company. A

whole new value system is "in," and this raises questions such as "where does this leave leadership and professionalism?" Further, "what about *esprit de corps*? Is it dead with employees only going through the motions to safeguard a job?" "Can we have professionalism when no one feels as though they belong any longer, or when workers constantly feel the threat of a force out or lay-off due to crushing economic pressures?" How would you define an effective yet admired leader in this type of setting?

We live in a paradox. On the one hand, exorbitant salaries are paid to athletes in many major professional sports. On the other hand, we pay much less to teachers who have greater social responsibilities. Of all the studies reviewed dealing with leadership, one glaring omission seems to surround the issue of ethical priorities. Where are our priorities today? Have we abandoned ethics and wholesome traits in our quest to identify leaders? We say we still hold steady to loyalty and integrity, but do we?

Newspapers abound with articles reflecting that we do not value the priorities of loyalty and integrity. For example, contradictory news articles appeared on the front page of a local newspaper on the same day. Where one writer lauds that the "U. S. jobless rate lowest in 28 years," the other writer captures the headlines in bold letters with, "Bemis plans layoffs" (Love, 1998, p. A1; Salesman, 1998, p. A1). In considering one's perception of job acceptance, worth, and dedication to a lifelong career in a leadership role, uncertainty abounds that confounds the efforts of even the best of leaders (Peter, 1983, pp. 59-61).

On Expectations and Standards

Cohen (1990) posed the question of who are successful leaders? Then he answered this question by stating it was "those with the highest expectations" (p. 23). For Cohen, the person in charge who sets high standards and then expects his followers to perform accordingly, has traits of successful leadership. Cohen used an example from the military when describing how General Curtis LeMay set exceptionally high standards for his Strategic Air Command (SAC). LeMay wanted half of the command to stand alert for immediate call to action with a B-52 bomber launched in two

minutes or less. LeMay was known for always pushing his troops to achieve higher standards. Many thought this was an impossible demand, but it was not. SAC achieved this quick launch window and became known as the most efficient command in the entire Air Force (Cohen, 1990, p. 22). The mark of a leader is when followers exceed job expectations and surpass the goals set. In such an instance, the leader has helped employees to serve the organization to the best of their ability.

Personality Traits and Leadership

Stout (1969) reported the results of effective leadership traits using factor analysis to determine the following seven personality characteristics: 1) intelligence, 2) general ability, 3) task ability, 4) level of education, 5) extroversion, 6) assertiveness, and 7) social maturity. Other studies included such characteristics as self-confidence, alertness, job motivation, and aggression. Depending upon the group, the circumstances, and the task at hand, one could surmise that just about any positive trait could be considered an aspect of effective leadership. What makes the difference is the "mesh." Considering the goal, the leader needs the right traits to mesh with the group's talents and skill levels to attain a successful outcome. However, a successful leader in one setting may not have the ideal set of traits required for the next group or project.

Stout (1969) illustrated that what some leaders have others do not. Thus, leadership appears to be a combination of innate and achieved attributes. Achieved attributes are a function of the group members. These achieved attributes would include interaction with the leader, the dynamic of the group, and the task at hand.

Illustrative Models to Describe Leaders

There are two prominent areas that most authorities cite when describing leadership models. One is the Great Man Approach in which people in many walks of life and disciplines are studied for their social contribution and leadership skills. The other is a categorization by concept alluded to in Wenig and Matthews' (1983) review of Burns (1978) work. Each of these models is presented as follows:.

The Great Man Approach

The Great Man Approach evolved from a series of longitudinal studies (1920-30, 1948-1970) (Coomer, 1983, p. 37). These studies were designed to differentiate 1) leaders from followers, 2) effective from ineffective leaders, and 3) high-level from low-level leaders. For all the time and effort that went into the studies, the results did not yield the same characteristics for different leader groups. The blame was laid upon poor experimental design and a variety of instruments used to measure personality that led to ambiguous and conflicting data (Coomer 1983, p. 37). The idea behind these studies was to identify great persons by examining their characteristics or traits. These characteristics or traits could later be used as illustrative examples of leadership. To a degree, the use of the Great Man Approach continues to influence our orientation in formulating leadership concepts.

Categorization by Concept

Wenig and Matthews (1983) illustrated leadership from four different perspectives. These included:

1. Active leadership—where the leader is the foci for direction; a leader first, servant second concept.
2. Passive leadership—where the leader lets others dictate after being provided some goals or objectives; a leader second, servant first concept.
3. Transactional leadership—occurs when a person seeks out others for exchange of some valued item, or directs them for task accomplishment.
4. Transforming leadership—occurs when a leader-follower interaction results in mutually raising each other to higher and higher levels of motivation and morality. Also, mobilizes and inspires both leaders and followers so that they join forces to achieve a mutually agreeable goal. (Wenig and Matthews, 1983, 22-23)

The first two leadership styles follow the framework of autocratic, democratic, and to some extent laissez-faire. Active leader-

ship maintains the characteristics of an autocratic/dictatorial leader. Passive leadership is more democratic in nature, and in a mild fashion, could become laissez-faire. Bass (1990) stated that transactional leaders reward good performance and discipline poor performance. Transformational leaders operate differently by elevating the interests of their employees and generating acceptance of the task at hand. These leaders inspire and intellectually stimulate their followers by communicating high expectations and instilling pride and commitment (pp. 19-31).

Since 1983, role researchers have found that leadership can be taught, especially the transactional and the tranformational styles of leadership (Bass, 1996). More emphasis is being placed on leadership education in professional schools, at military academies, and in the liberal arts colleges. Bass (1996) reported that "at least 600 such courses were being offered, according to a recently completed survey of colleges by the Center for Creative Leadership" (p. 97). Included in many of these courses was the subject transformational leadership.

Active Components in Leadership

There are a number of component parts that affect leadership. Some component parts hinge upon each other such as power and position (elements of transactional leadership). Additionally, some infer other component parts such as kindness, friendliness, considerate, supportive, consultative, open-mannered, and cooperation (elements of transformational leadership). It can be correctly stated that active leadership is situational and based upon needs of the group and leader.

The dynamic power in a leader exercising *control* can be identified in French and Raven's 1959 model, and in Huse and Bowditch's 1973 research (Coomer, 1983, pp. 44-45). The five powers are:

1. Identification power (or charisma)—"provides the necessary influence to cause followship." For example, a popular celebrity exercises a great deal of identification power over many people such as a movie star. The people are commonly known and exhibit status.

2. Expert power—based upon authority or knowledge. Examples are Copernicus, Einstein, Kelper, Newton, etc.
3. Legitimate, or position power—derived from the importance of the job level. It is most pronounced in companies with several layers of authority. The power base keeps the organization going and has potency in most situations. (Foster, 1985, pp. 1-2)
4. Sanction power—the leader's ability to reward a person which could also influence the amount of identification power.
5. Coercive power—the opposite of reward power. The authority vested in a leader to fire or discharge employees (Coomer, 1983, pp. 44-46).

Identification power is the least effective of the five. The other powers are needed in varying degrees to shoulder the responsibilities of being a leader.

New Leadership Models

New developments in empirical research have captured the attention of scholars and researchers of leadership theory and modeling. The models open the door wider to more definitive research into leader operant behaviors. Several of these models are reviewed below.

Fiedler's Contingency Model (Coomer, 1983) "asserts that leadership style is fixed" and that "effective leadership style *depends on the situation*" (p. 43). Coomer (1983) reported that the model is defined in terms of three factors which are:

1. leader-member relations
2. amount of structure in the task
3. amount of position or power of the leader (p. 43)

A leader can be highly directive and tell people exactly what to do, or at the other extreme the leader can involve the group in planning and execution of the task. This second method allows for sharing of leadership responsibilities. Fielder's contingency model

holds that a very authoritarian leader can be effective and even well-liked by group members if the group make-up is appropriate and the conditions are correct for such an approach (Coomer, 1983, p. 43).

Koestenbaum's Leadership Diamond model focuses on personality traits and methods of expressing greatness in thought and action. Koestenbaum holds that the genuine leader is committed to greatness by:

1. Vision—always sees the larger perspective, for visioning means to think big and new.
2. Reality—always responds to the facts, for realism means to have no illusions.
3. Ethics—always sensitive to people, to be of service.
4. Courage—always claims the power to initiate, act, and risk; to act with sustained initiative. (1991, p. 7)

Bass (1996) stated that leadership is conceived to be transformational and/or transactional (cf. Burns, 1978; Bass, 1990). Transformational leaders motivate others to do more than they originally intended or thought possible. They set challenging expectations and typically achieve higher performances in others.

The components of the transformational leadership model according to Bass (1996) are:

1. Charismatic leadership or idealized influence. Leader considers the needs of others over his or her own personal needs.
2. Inspirational motivation. Motivates and inspires followers by providing meaning and challenge to their work.
3. Intellectual stimulation. Stimulates their followers' efforts to be innovative and creative by questioning assumptions, reframing problems, and approaching old situations in new ways.
4. Individualized consideration. Leader pays special attention to follower's needs, achievements, growth, etc. (pp. 5-6).

Transactional leadership emphasizes the exchange that takes place among leaders, colleagues, and followers. The exchange is

based on the leader discussing with others what is required. These leaders then specify the conditions and rewards others will receive if they fulfill those requirements (p. 4).

The components of the transactional leadership model according to Bass (1996) are:

1. Contingent Reward (CR). Leader assigns or gets agreement on what needs to be done and promises rewards.
2. Management-by-Exception Active (MBE-A). Leader actively monitors deviances from standards, mistakes, and errors in the followers' assignments and takes corrective action.
3. Management-by-Exception Passive (MBE-P). Leader waits passively for deviances, mistakes, and errors to occur then takes corrective action.
4. Laissez-Faire (LF). The avoidance or absence of leadership, most ineffective, represents nontransaction. (p. 7)

Pyle and Farmer (1983) found that "the final test of a leader is that he leaves behind him in other men the conviction and the will to carry on" (p. 118). Coupled with this final test comes the challenge of crafting tomorrow's leaders. As Flint and Donoghue (1997) pointed out, a greater emphasis needs to be placed on leadership training in our teaching programs. True leadership begins by preparing others to lead.

Summary

The military has identified traits befitting good leaders. Studies have focused upon the styles of leadership and how the leader might become more effective. These studies often point out that leaders can be autocratic, democratic, or laissez-faire in their approach with others. With research, it has been determined that leaders could be classified into a number of different categories. These categories are useful to describe the characteristics of leadership, and they further provide clues to the behavior of individuals in leadership positions. The challenge to the curriculum area of technology education will be in preparing future leaders to guide others.

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Opportunities for Improvement in Professionalism and Leadership

Chapter 4 Strategies for Improving Professionalism

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Professionalism can be broadly defined as accepting responsibility for one's own professional development and growth (Shantz & Prieur, 1996). For many technology educators, professional development may be quite simple. For others, however, perhaps a little more difficult. Although it is believed that most technology educators have an inherent desire to become better professionals, actually developing and improving one's professionalism takes a great deal of time and effort. The purpose of this chapter is to identify strategies that can assist technology educators to help improve and develop their professionalism. Furthermore, this chapter will reveal resources that are available that can help individuals learn more about themselves in order to improve personal characteristics and develop strategies toward professionalism. The goals of Chapter Four are to help educators gain a better understanding of their personality style and leadership abilities, and to describe common personal characteristics exhibited by professionals. Also, information on planning, decision making, and service to the profession will be presented.

Chapter Four begins with several strategies for appraising one's personality style and leadership ability which will help to establish a baseline. Once a baseline has been established, strategies can be determined for improving or further developing an individual's potential as a leader/professional. Everyone has the ability to lead. Some just haven't developed their skills. Being a professional also means being a leader and one who understands leadership characteristics will most likely become a better professional. Characteristics such as being an active participant, valuing the diversity of other individuals, and taking risks are but a few of the personal characteristics of leaders.

Professionals plan their future. This begins with an image or a vision of how things should be accomplished. Developing personal

goals and a professional agenda will serve as a guide in the planning for this future. It is also necessary to develop an action plan with specific activities that will help to achieve these goals and the professional agenda.

Chapter Four continues with guidelines for decision making. Creating trust in others, encouraging shared problem solving, removing barriers to communication, recognizing and resolving conflict, and developing a team atmosphere are strategies to help one become a better decision maker. In turn, these guidelines will help technology educators improve and develop their professionalism.

The final section of the chapter deals with service to the profession. This may be the single, most important action for professional development and growth. It is the profession, and the people in it, that promote the values, beliefs and concerns of technology education. Without the profession, professionalism just doesn't seem as important. Clearly identifying issues and problems, publishing, and conducting research are activities that will carry the profession well into the twenty-first century.

Knowing Oneself

Each person has a potential to be a leader and the ability to develop and improve their own professionalism. The quest for leadership is first an inner quest to discover personal attributes. It is often a waste of time and effort to try and understand others if one does not take the time to understand themselves. Anderson (1992) believed that successful leadership development begins on the inside, develops its strength on the home front, finds an environment which is in harmony with its vision, and grows in stature both at home and in the workplace.

There are several questionnaires and inventories that have been developed to help people assess their current abilities. These materials can help people understand their personality style, leadership ability, and what kind of leader/follower one might be. Some of these instruments take just a few minutes to complete, and others may take up to several hours. The instruments discussed in this chapter are free or relatively inexpensive. It is recommended that one or two of these instruments be secured to help test personal

current leadership abilities and personality style. Once a baseline has been established, strategies can be developed for individual improvement.

The Keirsey Temperament Sorter is an instrument that can be completed to determine one's character and temperament. The instrument can be found at the Course Transformation Academy (CTA) web site at http://fcrc.indstate.edu/PEPP/CTA/resources.html or in the book *Please Understand Me*, by Keirsey and Bates. The instrument can be completed electronically in about 7-10 minutes and is scored automatically in just a few seconds. The results of each person's character and temperament type are thoroughly explained, and examples are given of successful people with similar temperament types. Keirsey and Bates (1984) offer insight as to how one's temperament may affect their role as a leader, follower, or team member.

After completing the instrument, the temperament type of this writer was determined to be SJ. SJ's comprise roughly 38 percent of the U.S. population. Keirsey and Bates (1984) describe the SJ temperament type with such terms as steadfastness, dependability, stability, reliability, salt-of-the earth, backbone of society, and pillar of strength. By most accounts these terms are flattering and considered good characteristics. However, the authors emphasize both the strengths and weaknesses of a person with this temperament type in their dealings with others and in different situations, such as managing and teaching. For example, SJ managers are decisive, work steadily and can be counted on to follow through on commitments. They possess and admire common sense. They are orderly, on time and on schedule, and they admire these qualities in others. On the other hand, the SJ manager may be somewhat impatient with projects which get delayed. They may decide issues too quickly. They are likely to hold that some people are good and some people are bad, and that the latter should be punished. The authors describe temperament and character type in great detail and have given the writer much to consider while charting a professional development course.

The Keirsey Temperament Sorter is based in part on the Myers-Briggs type indicator, a tool for identifying sixteen different patterns

of action. Four pairs of preferences are used to arrive at an individual's temperament type. The four pairs are extroversion vs. introversion, intuition vs. sensation, thinking vs. feeling, and judging vs. perceiving. Identifying with one of each of the four pairs helps to determine an individual's temperament. Other temperament types and a few of their characteristics are the SP—free spirit, impulsive, live for today; NT—understanding, predicting, explaining realities; and NF—intuitive, feeling, searching for self. All of the types are thoroughly explained in the text *Please Understand Me* (Keirsey & Bates, 1984).

The Myers-Briggs Type Indicator (MBTI) has long been a popular instrument for assessing personality style. The MBTI was designed to make it possible to test C. J. Jung's theory of psychological types. The aim of the MBTI is to identify, from a self-report of easily recognized reactions, the basic preferences of people in regard to perception and judgment (Myers & McCaulley, 1985). The instrument is available in several different forms and allows a person to put the information to practical use. Myers and McCaulley explain the sixteen different possible combinations of personality type and the uses of each type in different professions. The authors also explain how the instrument is being used in different situations. The MBTI is being used in education to develop teaching methods that meet the individual needs of students, and to help teachers, administrators, and parents to work together more constructively. In situations requiring cooperation and teamwork, the MBTI is being used to select teams and work groups with sufficient diversity to solve group problems. The MBTI is also being used to help group members recognize, appreciate, and make use of the strengths of each type of person in the group. This allows the team members to theoretically take advantage of each personality type in completing the task at hand (Myers & McCaulley, 1985).

Samples of other questionnaires and inventories to help test one's leadership and personality are the Personal Best Questionnaire (PBQ) and the Leadership Practices Inventory (LPI) developed by Kouzes and Posner (1987). The PBQ is twelve pages long and contains thirty-eight open-ended questions. Two examples of the questions include: What made you believe you could accomplish the results you sought, and what special techniques or strate-

gies did you use to get other people involved in the project? The inventory takes a few hours to complete, but it helps an individual find answers in assessing their own leadership skills. The LPI contains 30 items—six statements for measuring each of the five leadership practices proposed by the authors. Their research uncovered five fundamental practices that enable leaders to get extraordinary things done. These include challenging the process, inspiring a shared vision, enabling others to act, modeling behavior, and encouraging others to act with their hearts.

The Leader Behavior Description Questionnaire (Zorn & Violanti, 1993) consists of several versions ranging from a 10-item to a 40-item instrument. Each version lists possible behaviors of a person in a leadership position. The authors also developed the Multifactor Leadership Questionnaire which is a 73-item instrument based on Bass' conceptualization of transformational and transactional leadership (transformational and transactional leadership were presented in Chapter Three).

The Leader Adaptability Style Inventory (LASI) is a 12-item questionnaire. Each item consists of a vignette; the person completing the instrument chooses one of four alternatives that most closely describe what he/she would do in a particular situation (Hersey & Blanchard, 1974). For example, one situation reads, members of your group are unable to solve a problem themselves. You have normally left them alone. Group performance and interpersonal relations have been good. The alternative actions are: a) Involve the group and together engage in problem solving, b) Let the group work it out, c) Act quickly and firmly to correct and redirect, and d) Encourage the group to work on the problem and be available for discussion. The instrument was designed to help individuals measure three aspects of leader behavior, style, style range, and style adaptability. The authors discuss the three aspects of leader behavior in order to help individuals interpret their score and their responses.

Investigating one's leadership abilities and personality style can be fun and perhaps enlightening. The feedback will provide areas of strength and areas of needed improvement. With this information it is possible to develop a plan to acquire the skills that are necessary or to sharpen those one might already possess.

A Leader in All of Us

In his book, *The 7 Habits of Highly Effective People*, Stephen Covey describes proactivity as more than merely taking initiative. It means that as human beings, people are responsible for their own lives (Covey, 1989). Thus, the first of the seven habits is to be proactive. Covey further describes proactivity as taking control rather than being controlled. Proactive people are influenced by external stimuli whether physical, social or psychological. But their response to the stimuli, conscious or unconscious, is a value-based choice or response. Reactive people, on the other hand, are often driven by feelings, by circumstances, by conditions and/or by their environment.

Each person has the ability and the responsibility to make things happen. One of the personal characteristics of professionals is to be an active participator. Wenig (1991) endorsed leadership as a learned behavior and maintained that all normal people have the potential to become leaders. It takes active involvement, and educators should take every opportunity to apply their skills to the act of leadership.

Each person should open their mind to new experiences. This could involve many different activities like serving on a state or national committee, or working with a group of students in a student organization such as the Technology Student Association (TSA) or the Technology Education Collegiate Association (TECA). Litowitz (1995) described many good reasons for encouraging technology teachers and students to participate in student organizations. Both teachers and students experience development of leadership abilities, professionalism, competitiveness, program recruitment, curricular innovation, and personal satisfaction. Whether it be a student organization or another activity, educators owe it to themselves to make the effort to gain new experiences.

A professional values the diversity of other individuals. Anderson (1992) stated that more than half of North America's workforce now consists of minorities, immigrants, and women. Native white males will make up only about 15% of the increase in the workforce by the year 2000, as compared to 47% in 1987 (Johnston, 1987). As our economy is becoming more global, we

must realize the potential in valuing the diverse perspective and talent of each person, and learn to assist people of divergent values, beliefs, and backgrounds. Erekson and Trautman (1995) reveal several companies such as Digital Equipment Corporation, Hewlett-Packard, Honeywell, McDonald's Corporation, Procter & Gamble and Xerox Corporation that have implemented a response to help employees value diversity. These companies have incorporated training courses, public relations themes, and programs in an effort to promote diversity.

Diversity enriches the educational experience because people learn from those whose experiences, beliefs and perspectives are different from their own. Diversity challenges stereotypical preconceptions and helps individuals learn to communicate effectively with people of varied backgrounds. Diversity can strengthen communities and the workplace and enhance America's economic competitiveness (*The Chronicle,* 1998). Erekson and Trautman (1995) contend that educators in technology can no longer ignore issues of diversity and must include course content pertaining to the contributions of women and members of minority groups.

Everyone comes with certain gifts—but not the same gifts. Understanding these gifts enables people to begin taking the crucial step of trusting one another (DePree, 1989). Understanding and accepting diversity enables individuals to see the need for each other. It is often difficult to admit that someone may know more than us. The best strategy to defeat this emotion is to recognize the diverse talents of others and work with them to achieve common goals. In addition, each person should take a close look at their own assets and limitations. Recognize those limitations that can be changed and formulate strategies for remedying them (Cribben, 1981).

Other personal characteristics that help to develop individual leadership and professionalism include challenging your own thinking, questioning the status quo, and taking risks. Leadership is an active, not a passive process and leaders are pioneers—people who are willing to venture into the unknown. They are people who are willing to take risks, to innovate and experiment in order to find new and better ways of solving problems.

Risk taking in any form is betting (Byrd, 1978). Anytime a person takes risks, challenges, or questions, they are taking a chance that their actions may be wrong. If this happens, it is important to accept and learn from these mistakes. The proactive approach to a mistake is to acknowledge it instantly, correct and learn from it. This literally turns a failure into a personal success. Individuals must acknowledge mistakes and learn from them in order to be honest with themselves and improve their professional actions.

Martin (1995) contends that professional skills need to be learned and practiced just as technical skills. A teacher must first learn and practice professionalism and then teach and demonstrate these skills to students. Martin offered several suggestions for professional preparation. These suggestions were: 1) be an active participant, 2) develop a team attitude, 3) be upbeat and positive, 4) get involved in one's profession and stay involved, 5) be willing to change and accept that the process will not be without problems (Martin, 1995).

The personal characteristics that have been identified here can help in one's quest to become a better professional. They are behaviors that can be improved or developed, and many of the references cited here explain strategies to this end. Cribben (1981) cautions everyone to be patient. Behavior is changed slowly and with effort; attitudes change even more slowly. Each person must be persistent in their quest.

Creating a Vision of the Future

It is a simple fact that professionals plan, often creating a vision of how things might be in the future. Imagining a preferred future provides direction that is helpful in developing plans to reach certain goals. It is important to begin with a clear understanding of the destination. Covey (1989) stated that if the ladder of success is not leaning against the right wall, every step we take just gets us to the wrong place faster. Planning takes a great deal of time and effort, but it assures that goals are accomplished on time. These activities of goal setting and keeping promises helps people build the strength of character and creates other positive directions in their personal and professional life.

Bennis and Nanus (1985) describe vision as an image which may be as vague as a dream or as precise as a goal. The critical point is that a vision articulates a view of a realistic, credible, attractive future for an individual or the organization. Edwin Locke (1991) noted that the most inspiring and motivating vision statements share certain characteristics. These characteristics are: 1) brevity, 2) clarity, 3) abstractness, 4) challenge, 5) future-orientation, 6) stability, and 7) desirability.

Identifying core values, the things that are important, are helpful in determining a personal mission or philosophy. These values become instrumental in the development of one's personal goals and professional agenda.

At a workshop on professional development a few years ago, participants were given a small (3" x 5") memo book. The presenter (Rogstadt, Bell, Gilberti, Rouch, & Smallwood, 1995), asked everyone to think about professional and personal goals and to respond by writing five of each in the memo book. Everyone was then asked to record five skills they would like to master. A timeline, was then assigned to each goal and the skills required to obtain those goals. A short paragraph was then written for each of the top three goals. This activity revealed why each person was committed to achieving this goal. It was suggested to take action on these goals now. It was also suggested to keep this memo book, referring to it often, and updating it when necessary. This was a wonderful activity that helped the writer identify those things in both a personal and professional life that were most important. It was also helpful in organizing a plan to achieve these goals.

Once the vision has been created and the mission statement articulated, an agenda must be developed (Tichy, 1986). No matter what it is called—personal agenda, purpose, legacy, dream, goal or vision—the intent is the same (Kouzes & Posner, 1987). One must look ahead and develop a clear sense of direction in order to plan for success. Imagining a preferred future and planning to reach certain goals may at times be difficult. Many of the resources listed in this chapter describe several techniques or strategies that will assist individuals in making improvements in these areas.

Developing personal goals will help in planning one's professional agenda. For example, a personal goal may include becoming a better teacher or getting students more involved in one's discipline outside of class. There are many ways to achieve these goals through one's professional agenda. Reading professional journals, joining a professional association or starting a technology student organization may help achieve these personal goals. These goals need to be stated in a concrete manner and put in writing so that their attainment can actually be observed and measured.

Specifying an action plan to achieve individual goals is an essential step toward success. This action plan is like a blueprint and should require careful consideration. This plan should include the specific activities one intends to pursue to achieve the goals and professional agenda. Record the plan in writing in order to review it on a regular basis. Readjusting these goals and timetables may be necessary to insure one's ultimate success. This activity should be viewed, not as poor planning, but as continuous improvement toward professional development.

Becoming a Better Decision Maker

Another skill that will help improve and develop professionalism is to become a better decision maker. Many techniques can be employed to help improve the decision-making process. Creating trust in others, encouraging shared problem solving, removing barriers to communication, recognizing and resolving conflict, and developing a team atmosphere are some practices which can help one become a better decision maker.

The chance for success in personal and professional situations can be increased by developing trust in other people and involving those who will be affected by the decisions. Professionals rarely achieve success by themselves. They are constantly encouraging collaboration, building teams, and empowering others. Drucker (1985) reported that teams cannot be formed overnight. They require long periods before they can function because teams are built on mutual trust and understanding. This trust and understanding should be a part of one's daily activity. Collaboration,

team building, and empowerment are often referred to as creating a win/win partnership or simply enabling others to act. Regardless of what it is called, creating trust and encouraging collaboration involves a commitment on an individual's part to involve others in decision making and shared problem solving. One has to believe in their heart that the right decisions will be made.

Communication is one of the most important skills in one's professional life. Oftentimes, miscommunication can be detrimental to decision making. Certain barriers may be in place that result in the wrong decision being made. The tone of voice, the language used, and nonverbal gestures can all be barriers to communication. In order to become a better decision maker, these barriers must be removed. There is a myriad of literature available for improving both verbal and nonverbal communication.

One valuable resource, *TQS: Your Ticket to a First Class Job*, was developed by the Federal Way Public Schools in conjunction with United Airlines. This program was developed as an Internet Academy course and can be found at the web address http://iasec.fwsd.wednet.edu/tqs/index.htm. The quick start link on the main page will reveal a table of contents with such topics as communication, team building, problem solving and conflict resolution. Unit two of this course provides important information about communication skills and includes such topics as nonverbal communication, and body language. Following the communication link reveals effective ways to express positive body language such as alertness, eye contact, smiling, good posture, focusing, relaxed breathing, and nodding in agreement. The course also provides links to quizzes and other reading materials to assist one in improving their communication skills.

Being able to recognize and resolve conflict is another important guideline for decision making. Conflict can hinder the decision-making process. That is not to say there shouldn't be disagreement. There will always be some differences in opinion among individuals. However, the disagreement needs to be acknowledged and openly discussed in order to arrive at a decision that is satisfactory for the situation.

Individuals who have learned mediation or conflict resolution skills are able to remain calm and self-confident when dealing with people. The aforementioned reference, *TQS: Your Ticket to a First Class Job*, devotes a unit to problem solving and conflict resolution. While it is a good resource, it is important to remember there are many other resources available that deal specifically with conflict resolution. Technology educators are encouraged to read the literature and practice the suggestions in order to attain these conflict resolution skills. A few suggestions for resolving conflict are to maintain a positive attitude, be flexible, listen to understand, and listen for opportunities to present new ideas.

Promoting and developing a team atmosphere will encourage collaboration and enhance the decision-making process. The team building process can be used to enhance communications, interpersonal relations, problem-solving, and decision-making skills and the overall functioning relationships of any group. The process can further clarify roles and goals, resolve internal conflict, and build upon collaborative efforts (Tomal, 1997). Team building has been identified as one of the worker characteristics most important to the participative management concept (Smallwood, 1991; Little, 1986). Some characteristics of a good team member are working for consensus, involving others in decision making, developing trust and respect, and listening carefully to other ideas (Karwatka & Pierce, 1993). These characteristics can be learned through activities in a team building session. Corporate America is spending a significant amount of time and money putting employees into challenges outside the office in hopes of fostering workplace cooperation. Several types of synergistic exercises are produced by commercial companies. Playfair Inc., based in Berkeley, California administers 500 team building programs a year. Adventure programs like Outward Bound have expanded their corporate outings, and the market leader Pecos River Learning has 20,000 corporate clients each year (Glanton, 1997). Creating a team atmosphere may help accomplish goals in a timely fashion.

Service to the Profession

One of the best ways for technology educators to improve and develop their professionalism is to serve the profession. This could involve joining local, state, national or international organizations. It may also involve publishing, or conducting and disseminating research. There are many ways to serve the profession which will in turn help to develop oneself.

State, national and international associations provide resources for professional development. Joining a professional organization allows a person to develop through activities at conferences and other professional meetings. Participating in conferences, workshops and programs can be very stimulating and professionally rewarding.

One way to serve the profession is by identifying and communicating issues or problems. These issues and problems need to be addressed in order to improve the status of the profession. One method for communicating these issues and problems to a larger audience is by publishing the information. There are a number of journals and magazines that serve a broad spectrum of areas related to technology education (Liedtke, 1997). These may include journals from the technology education profession or from a closely allied discipline such as mathematics, engineering, or science. Publishing can be a means of fostering curricula or programs or promoting new theories and concepts.

Henson (1997) contends that people may write for publication to give back to the profession, to improve their profession, to improve their teaching, or to advance their own careers through securing tenure, promotion, or merit pay. Hensen included tips on how beginners and experts alike can improve their publishing success. For example, choose the journal carefully, get a feel for the audience (the topics covered, the problems dealt with, and so on), and the journal's style (writing style, reference style, and mix of research, philosophy, and practical information). Obtain a copy of the journal guidelines for authors, and follow it closely. By following these suggestions, a person can improve their writing while increasing their chances of acceptance (Henson, 1997).

Liedtke (1997) illustrated that publishing contributes to each educator's professional growth and development by facilitating in-depth examination of issues and trends in technology education. The rewards of publishing will continue to return to the writer over the years. This monograph reveals many helpful hints for preparing manuscripts for professional publication. Information on gathering resources, preparing the manuscript, and submitting the manuscript are included in the document.

There is currently a great need for research in technology education. Although it is a great deal of work, conducting and disseminating research can be a service to the profession. Foster (1996) identified several types of research studies that are needed by the profession. The topics included: 1) integration of educational disciplines, 2) the role of technology education as general education, 3) a rationale for technology education, and 4) the capability of technology education programs to deliver technological literacy.

Johnson (1996) reported that technology education can provide educational researchers with a model of "best practices" in teaching. He identified some popular instructional approaches that need to be researched such as: 1) learning in context, 2) learning from peers, 3) activity-based practice, and 4) reflective practice.

Finally, another way to serve the profession is through recruitment. We may well be experiencing the most critical shortage of teachers for the profession. Alexander, Allen, Nelson, and Sisk, (1998) recently conducted a national survey on technology education in the United States. The survey revealed a serious technology education teacher shortage. Some of the strategies suggested for recruiting new teachers into the profession are to: 1) recruit from the TSA, 2) recruit engineers to teach technology, 3) attract undergraduates through on-campus recruiting, and 4) use a WWW site as a "virtual recruiting agent" (Todd et al., 1996). Recruitment and retention of new technology educators representing diverse groups can make a significant contribution to the profession.

Serving the profession through publishing and research can be a very rewarding experience. It can help an individual grow both personally and professionally. Likewise, recruiting new teachers and observing their growth in the profession can be very rewarding.

All technology educators should consider these activities in developing their professional agenda. It will be of great benefit to everyone in the profession.

Application/Reflection

Technology educators can incorporate many of the strategies illustrated in this chapter into their classes. The Keirsey Temperament Sorter can be completed and scored electronically in less than 10 minutes. Most students find it enlightening to discover more about their personality and how this may affect their leadership ability in different settings.

Discussing issues such as diversity, resolving conflict, and team building in the classroom will help enlighten students and make them aware of potential problems that could hinder their ability as a professional or the decision-making process. Additionally, a variety of activities can be used in the classroom to demonstrate to students how to develop personal goals, a professional agenda and an action plan. These activities will help to develop future leaders and will aid in the overall professionalism of our future educators.

Summary

This chapter has presented information to assist technology educators in improving and developing their professionalism. Improving professionalism is a choice which must be made by each individual. Several questions need to be answered before making this choice. Questions such as: 1) Do I have a desire to improve my professionalism? 2) Do I have the time and energy to devote to professional development and growth? 3) Will I benefit from this effort? Those who are reading this yearbook have already taken the first step in an effort to improve professionalism. Strategies have been presented throughout the chapter that will assist technology educators in achieving this goal. It is recommended that each person conduct further study and begin to plan for their professional development and growth. Do it for yourself and the profession. It will be worth the effort.

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Chapter 5

Professional Associations, Organizations, & Other Growth Opportunities

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"The opportunity to participate actively in the development of one's profession, not to mention one's civic responsibilities, is a rare privilege" (*Let George Do It*, 1942, p. 2). These words were echoed by the editor of the first issue of *The Industrial Arts Teacher* (now *The Technology Teacher*) and still hold true today. Joining a professional association or organization is indeed a privilege. For those who join, it provides them numerous opportunities to grow both personally and professionally by participating in many of the formal and informal activities sponsored by the association or organization.

Organizations and associations bring together groups of people with common backgrounds and interests. In most instances, the organization is a well-structured unit. It consists of various subgroups (e.g., committees) and sponsored activities (e.g., annual conferences) that help contribute to the goals and purposes of the organization.

The purpose of this chapter is to examine a variety of professional associations, organizations, and other growth opportunities for those in the field of technology education. This chapter describes the roles of associations and organizations in relation to personal professional development and illustrates a variety of opportunities for those in the field of technology education.

The Role of Associations and Organizations in Personal and Professional Development

Becoming a member in a professional association or organization offers the member many benefits. It exposes them to the latest trends in their field. It provides a forum where they can discuss ideas with other members and provides ample professional growth

opportunities where members can become involved in the decision-making process of the entire organization. Members who participate in professional organizations soon learn that they do indeed have a "voice" that can be heard and can be used to change or alter the organization in important ways.

Professional organizations offer members an opportunity for professional growth through the sharing of ideas. It offers them exposure to the latest trends and developments in their field. Organizational publications, national and regional conferences, and workshops help to keep members on the "cutting edge" in their field. Many organizations offer their members a monthly magazine and may also publish a scholarly journal that discusses current research efforts in their field. Other publications may include books, newsletters, recruitment materials, audio and videotapes, and special publications that feature information on timely issues or trends that are impacting the organization.

A recent development for many organizations is the creation of an Internet web site. Numerous organizations have developed web sites to keep their members informed of current developments. These web sites can provide members with a wealth of information about the organization, its mission and history, members of the executive board, upcoming conferences, and scholarship and award programs. In addition, the web site may provide links to sites and offer a career placement service.

The annual conference is the highlight of most organizations. The conference brings together a large gathering of members where they are exposed to the latest trends, developments, and products that are influencing the field. At the conference, members have opportunities to formally or informally express their ideas or thoughts. Formally, members can submit a proposal to speak at the conference. If the proposal is accepted, they can share their ideas on a variety of topics. These may range from new technological developments that are impacting the field, to a philosophical presentation on where they feel the profession is headed. At most conferences, there are many formal and informal social activities (e.g.,

banquets, alumni dinners, parties, etc.) that occur. These gatherings provide members with an opportunity to interact personally and network with colleagues. They allow new members to meet the "leaders" of the field or find information on how to become involved in the organization.

Organizations work for the good of its members and recognize those who achieve. Many become involved in government relations where they stay in contact with government agencies, elected officials, and other agencies that may influence or affect the organization. Organizations take great pride in honoring their members. Many have award programs where they recognize outstanding individuals or programs. Organizations may also provide its members with opportunities for growth through scholarships and grants, where eligible members receive monetary awards.

Joining and Encouraging Others To Join a Professional Association or Organization

All professionals share one common element—involvement in their association or organization. Becoming involved professionally means joining a professional association. There are many good reasons for becoming a member of a professional association. Hanson (1983) identified the following:

1. There is strength in numbers. More political power can be realized when a large percentage of practicing professionals belong to professional associations.
2. Initiatives that are established by the association have better opportunity to be realized when the membership speaks with unity.
3. Associations provide a common link for professional discourse.
4. Professionalism is itself spawned out of active, purposeful activity as it is practiced by its members and observed by prospective or less dedicated members.

5. Association-sponsored gatherings, such as conferences, provide members with a forum for the exchange of knowledge and methods or approaches to carry out initiatives through informal conversations and scheduled speeches as well as refereed periodicals and educational materials.
6. Practicing professionals can become personally acquainted with professional leaders and subsequently may question and discuss reported professional positions. (p. 206)

Joining a professional organization should occur early in one's career. Initial exposure to professional organizations typically occurs during one's undergraduate preparation. For example, in technology teacher education professional methods courses, students learn about the associations and organizations affiliated with their field. As a first step in becoming a professional, they are encouraged to join, often at a discounted student rate.

As a professional in an organization, it is your responsibility to encourage others to join. However, prospective new members to a profession often ask, "Why should I join the organization?" They want to know what benefits they will receive. They want to know where their money from dues is going and how joining a professional organization will help them. As a member in the professional organization, it is your duty to help answer these questions.

Encouraging others to join an organization can begin with your own personal reflections. Sharing with prospective members how the organization has personally helped you is one of the best recruitment methods. Your discussions should include how the organization has made you a better professional by allowing you to become involved in the profession; keeping you informed of current technological innovations; providing you with meaningful activities; and giving you opportunities to discuss current issues and trends with other professionals.

When you join an association, you are indicating your desire to work for the good of the association. It is a commitment you make. It shows that you care about your profession and your chosen career. It demonstrates a willingness to become involved and support the causes you believe in. It also means becoming pro-active.

An association cannot operate without the support and commitment of its members. Being a member of a professional organization means more than just receiving a monthly journal or newsletter. It means contributing to the association through the sharing of your own work and willingness to participate in association activities and committees.

Professional Associations and Organizations in Technology Education

Professional organizations and associations in education are formed to support, promote, and advance a field or discipline. They are guided by such components as a strategic plan, a mission, and goal statements that the organization has formulated. Organizations are dynamic entities in a state of continual change. New directions, new members, and new technology may change the way the organization operates. However, most organizations and associations contain the following common elements:

- Board of Directors: functions to oversee the entire organization. Typical members may include an executive director, president, president-elect, treasurer, secretary, and representatives from each of the organization's councils, divisions, or regions.
- Publications: includes such items as journals, yearbooks, and special publications.
- Committees: serve to promote and advance the organization. Examples of committees include executive, conference planning, membership, research, and awards.
- Conferences and Workshops: annual and regional.
- Internet Web Site: now common for many organizations.

There are many professional associations, organizations, and affiliated councils for those in the field of technology education. They offer a variety of growth opportunities for those members who participate. As the field of industrial arts changed to technology education, so did the names of most of the councils and associations affiliated with industrial arts. Beginning in the 1980s, most

associations and councils changed their names to reflect technology education. For example, in 1985 the American Industrial Arts Association (AIAA) changed its name to the International Technology Education Association (ITEA) (Reeve, 1990). This section will present an in-depth review of the ITEA showing the make-up and functions of a typical association and its affiliated councils, and a brief review of other professional associations for those in the field of technology education.

The International Technology Education Association

The International Technology Education was formed in 1939 as the American Industrial Arts Association (AIAA). The association was organized during the annual conference of the American Association of School Administrators in Cleveland, Ohio. The first conference was sponsored by Epsilon Pi Tau (EPT) as a part of the fraternity's tenth anniversary celebration. Approximately 20 leaders in the field of industrial arts met to discuss how to deal with many of the problems created by the national growth in industrial arts (Barlow, 1967, pp. 83-85).

Today, the ITEA is the leading association for professionals in the field of technology education. It is an association whose major purpose is to promote the advancement of technology education in schools. Starkweather (1995) offers an excellent in-depth review of the International Technology Education Association in the Council on Technology Teacher Education (CTTE) 44th Yearbook: *Foundations of Technology Education.* In Chapter 17 of the yearbook he reviews the ITEA's organizational structure, its culture, its vision, and mission. He also reviews its major functions, association subgroups, the Technology Education Advisory Council (TEAC), and the Foundation for Technology Education (FTE).

The ITEA board of directors oversees the operation of the association. The board meets periodically to discuss and direct the goals of the entire organization. Members of the board include: the executive director, the president, past president, president-elect, representatives from each of the ITEA's four regions, and the directors from each of the councils (i.e., CTTE, TECA, and TECC)

affiliated with the ITEA. Membership is open to anyone interested in supporting and promoting technology education. Individual memberships are available in the following categories: professional, undergraduate (TECA/ITEA), retired, and sustaining technical representatives. The ITEA also offers group memberships to elementary schools, institutional/universities, and sustaining companies (ITEA, 1997).

The ITEA offers its members numerous benefits and services. *The Technology Teacher*, published eight times a year, keeps its members abreast of current issues and trends affecting the field of technology education. Its timely articles and feature stories provide members with practical teaching information, learning activities, new curriculum developments, and reviews of top programs. The journal is a refereed publication. The editorial review board is made up of a chairperson and other ITEA professionals who are responsible for reviewing manuscripts submitted to the journal. Another important publication sponsored by both the ITEA and the Council of Technology Teacher Education (CTTE) is the *Journal of Technology Education* (JTE). This refereed research journal, available on-line at http://scholar.lib.vt.edu/ejournals/JTE/, provides members with the latest developments and trends in technology education. The journal focuses on technology education research efforts, philosophy, theory, and practice. Also, included in the journal are book reviews, editorials, guest articles, and research digests.

The ITEA also provides its members with many other publications. These publications are related to all aspects of technology education, from current research to advocacy issues. An excellent example of a document disseminated by the ITEA was the 1996 *Technology for all Americans, A Rationale and Structure for the Study of Technology.* Other ITEA publications include the *Curriculum Briefs* developed to meet the needs of classroom teachers and *Technology and Children*, a periodical for those teaching technology in grades K-6.

The annual ITEA conference and trade show is a highlight of the association. It is a time for members from all around the world to meet and grow both personally and professionally. General and

special interest sessions allow members to keep current on their interests. Formal and informal activities allow members to network. Recognition and scholarship ceremonies honor those who have achieved excellence in the field. The trade show features the latest innovations and products from vendors.

The ITEA provides its members with many additional services. A very impressive Internet web page available at http://www.iteawww.org has been developed by the ITEA. Their home page contains a wealth of information related to technology education and the ITEA association. For example, on this page one can search to find out the facts about the ITEA; review awards, grants, and scholarships offered by the ITEA; learn about related technology education organizations and universities; keep informed about the annual ITEA conference; visit the software bank; or use the placement service. Other services provided by the ITEA to its members include a variety of insurance programs and discounted travel services (ITEA, 1997).

Members of the organization can take advantage of its impressive grants, scholarship, and fellowship opportunities that are sponsored by the ITEA, corporations, other associations, and the Foundation of Technology Education (FTE). As Starkweather (1995) noted:

> The Foundation for Technology Education was created by the ITEA to work on projects that would have long-term significance for the profession. Although it is a separate entity from the ITEA, its purpose is to create programs and to work in conjunction with the ITEA in order to enhance the field of technology education further. (p. 564)

The ITEA also annually recognizes outstanding people for excellence in the field. Teacher and Program Excellence Awards honor outstanding teachers and programs. Other awards given by the profession include the Academy of Fellows, Award of Distinction, Prakken Professional Cooperation Award, Lockette Humanitarian Award, Distinguished EEA-SHIP Member Award, Special Recognition Award, and Meritorious Service Award. The association also has a Distinguished Technology Educator (DTE) recognition program to honor the leaders in the profession (ITEA, no date).

Associations and organizations cannot function without the support and commitment from its members. Most associations provide members with a variety of support committees that are formed to meet the needs identified by the association. The ITEA has a variety of committees that allow members to "get involved" and support the goals of the association. Most ITEA committees meet at the annual conference to discuss the goals and tasks required of the committee, develop an action plan, and to report on the committee's progress. The following are current ITEA committees: Affiliations, Awards, Ballot Counting, Conference Program, Elections, Government Relations, Liaison, Membership, Resolutions, Special Events, DTE Review Board, JTE Review Board, Publications Review Board, and the TTT Review Board.

Associations and organizations need support from within. This support typically comes in the form of professional affiliated councils. These affiliated councils composed of special interest groups work to advance their own interests and those of the affiliated organization. Within the ITEA association, three major support councils have been formed. To become a member of any of these councils, the individual must also be a member of the ITEA. A brief review of these councils and associations will be presented here. Lauda (1995) in Chapter 18 of CTTE's 44th Yearbook presents an in-depth review of professional councils associated with the ITEA: *Foundations of Technology Education.*

Council on Technology Teacher Education

Founded in 1950, the Council on Technology Teacher Education (CTTE) (http://teched.vt.edu/ctte/) provides leadership to college/university professionals who are involved in technology teacher education. The goals of the council are as follows (CTTE, 1997):

> Support and further the professional ideals of technology teacher education.
>
> Define the purposes and achieve the professional goals of technology teacher education.

Stimulate research and the dissemination of information of professional interests.

Provide educational leadership opportunities to its membership.

The council offers its members a variety of activities and publications. At the annual ITEA conference, the council offers special interest sessions and meetings for its members. Also, at the conference, it recognizes outstanding leaders in technology teacher education and outstanding members of the council. The major publication of the CTTE is the CTTE Yearbook. Published annually since 1952, it focuses on current topics that hold promise for improving the quality of technology teacher education. The council also publishes timely monographs and newsletters to help members stay professionally current. In addition, the council and the National Association of Industrial and Technical Teacher Educators (NAITTE) annually publish *The Industrial Teacher Education Directory* that lists information about educators from more than 250 institutions of higher learning. Finally, the council in support with ITEA publishes *The Journal of Technology Education* (CTTE, 1997).

International Technology Education Association Council of Supervisors

Founded in 1951, the ITEA Council of Supervisors' (ITEA-CS, Web site http://www.seelb-eurotecnet.demon.co.uk/iteasc/).mission is to provide support and leadership for those who coordinate or supervise technology education programs. This association of professionals helps promote technology education through the development of relevant technology education curricula, the development and promotion of model technology education programs, and by offering teacher in-service programs. At the annual ITEA conference, the council offers special interest sessions and meetings for its members and recognizes those that have achieved excellence in the field. It publishes a variety of publications, including forum discussions, a newsletter, and information on supervision and administration (ITEA, 1997).

Technology Education for Children Council

Founded in 1962, the Technology Education for Children Council (TECC) mission is to promote technology education in the elementary school by supporting teachers with instructional materials and in-service workshops. At the annual ITEA conference, the council offers special interest sessions and meetings for its members. It publishes a newsletter, monographs, and develops curriculum activity packages (ITEA, 1997).

Association for Career and Technical Education (ACTE) Technology Education Division

Founded in 1926, the American Vocational Association (AVA) (now known as The Association for Career and Technical Education—ACTE)is the largest national education association dedicated to the advancement of vocational education. Its mission is to provide educational leadership in developing a competitive workforce. It is a professional organization of teachers, educational administrators, teacher educators, counselors, business and industry partners, students and others with an interest in workforce education. It carries out a diverse array of programs that advance vocational-technical and school-to-careers education (AVA, 1997).

The ACTE keeps an active web site available at http://www.avaonline.org. Their web site offers information on such items as conventions and workshops, legislation news, and new products available to members. All ACTE members receive the monthly journal *Techniques* which is a magazine that keeps members current on issues and trends affecting vocational education. In addition to an annual conference and pre-conference workshops, the ACTE also sponsors a variety of workshops during the year at various geographic locations. ACTE offers its members a wealth of publications and products designed to promote and improve vocational education.

The association's policy is determined by a 21-member elected Board of Directors, including a President, Past President, President-Elect, and 18 vice presidents representing the association's 13 divi-

sions and five geographic regions. One of the association's divisions is the Technology Education Division (TED). The mission of the TED is to advance the development of technological literacy and capability for life and work. The goals of the technology education division are as follows (ACTE-TED, 1997):

1. Promote professional unity and collaboration.
2. Provide activities and products for leadership development and program improvement.
3. Increase the flow of new technology teachers into the profession.
4. Provide effective advocacy for the profession.
5. Strengthen the operation and resource base for the division.

Technology education division members meet at the annual ACTE conference to discuss current technology education issues and trends. Also, the division sponsors several special interest sessions during the conference. Those who are TED members must also be members of the ACTE.

National Association of Industrial and Technical Teacher Educators

The National Association of Industrial and Technical Teacher Educators (NAITTE) was founded in 1937. The association's primary audiences are those who prepare teachers and instructors in the following fields: technology education, trade and industrial education, technical education, and industrial and military training. The association's primary goals are to promote opportunities for professional growth and development, and to develop a cooperation among related client groups (NAITTE, 1997).

The association offers its members a variety of activities and publications. At the annual ITEA and ACTE conferences, the association offers special interest sessions and meetings for its members. The association has a web page available at http://www.orst.edu/Dept/NAITTE, where members can find out about activities and services provided by the association. The major publication sponsored by NAITTE is the highly respected *Journal of Industrial Teacher Education* (JITE). The journal is avail-

able online at http://borg.lib.edu/ejournals/JITE/jite.html, and it is published four times a year. The association publishes a variety of other professional publications.

Members in NAITTE have many committees on which to serve. Examples of NAITTE committees include the executive, program planning, auditing, nominating, membership, awards, and research. Ad-hoc NAITTE committees include the T&I Teacher Standards Committee, Electronic Communication/Internet Task Force, the NAITTE Foundation Task Force, and the Graduate Student Task Force. NAITTE gives its members various awards, including the prestigious Silvius-Wolansky Award that honors outstanding young industrial education faculty members.

Technology Education Collegiate Association

Founded in 1972, the Technology Education Association (TECA) consists of undergraduate technology education students. The goal of the association is to motivate and involve future technology teachers in professional and leadership development activities. The association is organized into chapters at various universities and colleges around the country. TECA members must be ITEA members. To encourage members to join, the dues are one-half the cost of the professional ITEA member price. TECA members receive a newsletter and participate in a variety of local chapter activities and competitions. At the ITEA annual conference, and some regional conferences, the TECA holds meetings, socials, and competitions between other TECA chapters (ITEA, 1997).

State Technology Education Associations and Organizations

As previously reviewed, there are numerous organizations and associations at the national and international level that support the mission and goals of technology education. Just as important are the state associations formed to promote technology education within a state. These associations are formed to serve both students and teachers in technology education with their mission and goals mirroring those of the ITEA.

Almost all states have their own technology education association. Most associations are affiliated with the ITEA and are organized in a similar manner. The association will typically contain a governing body or executive committee to guide the association. This governing body may include an elected president, president-elect, past president, vice president, treasurer, and secretary. State associations also typically work closely with the state's technology education supervisor or specialist. The supervisor may assist the organization in the planning of a state conference, developing in-service workshops and as serving as a consultant to the association.

Membership in state associations is open to almost anyone interested in technology education. Members may include those teachers from K-12 schools, local college and university instructors, college students, administrators, as well as retired teachers. State technology education associations provide their members with many benefits and opportunities to serve the profession. Perhaps the most important benefit that is provided to members who join an association is the opportunity to become involved with their fellow colleagues. Collegiality is emphasized in state technology education associations. Members are encouraged to interact with their colleagues and to find out what others are doing in their programs (i.e., to find out what works and what doesn't). Members in a state association have the opportunity to discuss and share such items as curriculum, activities, programs, funding, grant opportunities, local graduate programs, and the purchasing of supplies and equipment.

Members who join state technology education associations receive many of the same benefits as provided by national associations. States associations hold an annual conference featuring nationally known speakers, workshops and special interest sessions that help members to stay current in their field. The conference is typically the most important function of the association. It provides an opportunity to network with other members, to examine new vendor products, and to honor outstanding programs and individuals who have served the profession and association. Many conferences also feature a "tech-fest or tech exposition" where both students and teachers can show off their best work.

State conferences are not exclusively for technology education teachers, many conferences encourage technology education students from K-12 and college/university schools to attend and participate. Students from these schools may participate in state contests or events. The Technology Student Association (TSA) may sponsor contests and events for K-12 students. The Technology Education College Association (TECA) may sponsor events for college/university students. In addition, some associations offer scholarships to outstanding secondary students who plan to pursue a career in technology education.

Members of state technology education associations are encouraged to become involved. There are numerous positions to fill in state associations. For those wanting to get involved in leadership positions, they may run for an executive position (e.g., president of the association). Most associations also have various committees which members can serve on or chair. Since most associations publish a newsletter or journal, members are needed on the publications committee. Other committees may include those for conference planning, legislative work, events, awards, scholarship and membership.

As previously mentioned, many associations periodically publish an association newsletter or journal. This publication may contain information on how to contact executive committee members, features on local programs or individuals within the state, stimulating classroom activities, and information on the annual conference. A recent trend among many state associations is the development of their own Internet web site. Their home page may contain information about the association including: the executive committee, its mission and goals, a history of the association, links to other technology education schools within the state, their newsletter, related technology education links, and information about the state's annual conference.

State technology education associations provide the opportunity for many to become professionally involved in their chosen field. It gives them an opportunity to participate and make decisions on issues that may directly affect their careers or programs. Low dues and the closeness (i.e., within the state) of meetings, workshops and conferences make joining a state association very attractive.

Local Technology Education Associations and Organizations

Local technology education associations and organizations typically exist to meet the needs of technology education professionals who live and work within a local area or region. For example, a large school district may have its own technology education association consisting of the district's technology education teachers. Local technology education associations are formed to promote and support technology education within a specified area or district. These associations provide opportunities for a small group of members to get together to share activities and ideas or visit other technology education programs. In addition, these associations may plan local contests or work together on public displays that spotlight the efforts of local technology education programs.

Members of the local association may hold scheduled or unscheduled meetings to discuss the mission and goals of the association. Members usually choose a leader of the group who is responsible for scheduling meetings, planning group functions, and forming support committees within the association. A major benefit of local associations is that it provides opportunities for technology education professionals to work closely with one another. Members of local associations are also usually members in the state's technology education association and participate in the association's sponsored activities.

Other Professional Associations and Organizations

There are literally thousands of other organizations and associations available to technology education professionals. These organizations and associations bring together individuals with similar interests who are willing to work together and to promote their common interests. Also, many organizations and associations try to work with other organizations and associations who share similar and common interests. For example, the ITEA works with many other groups. In his discussion on an association's culture and its relationships to other groups, Starkweather (1995) notes:

> The ITEA, for example has developed strong working relationships with members of the scientific community, including but not limited to, the American Association for the Advancement of Science, the National Science Teachers Association, the American Society of Engineering Education, and the National Council for Teachers of Mathematics. Other relationships have been forged with curricular groups, such as the Association for Curriculum and Development, Phi Delta Kappa, and the Council for Basic Education. (pp. 549-550)

Professionals in technology education have a wide range of interests. Joining other organizations helps contribute to the individual's professional and personal growth. Individuals join other organizations for many reasons, including to strengthen their own backgrounds in the areas they teach (e.g., in manufacturing or communications) or to support other disciplines related to technology education.

As previously mentioned, organizations and associations have many common elements which may include an executive director of the organization, various publications, committees, conferences and workshops, and in many instances, an Internet web page. Without exception, all organizations encourage their members to become actively involved. The purpose of this section is to briefly review some other organizations and associations that those in technology education may find interesting and helpful in contributing to their professional growth. Where appropriate, an Internet address is provided so that the reader can find out more information about the organization or association.

American Association for the Advancement of Science (AAAS)

The American Association for the Advancement of Science (http://aaas.org) is among the oldest societies in America, having been founded in Philadelphia in 1848. It is a nonprofit professional society dedicated to the advancement of scientific and technological excellence across all disciplines, and to the public's

understanding of science and technology. The mission of the association is to further the work of scientists; facilitate cooperation among them; foster scientific freedom and responsibility; improve the effectiveness of science in the promotion of human welfare; advance education in science; and increase the public's understanding and appreciation of the promise of scientific methods in human progress. Members include scientists, engineers, science educators, policymakers, and others dedicated to scientific and technological progress. AAAS is affiliated with many other scientific and engineering organizations. The association publishes *Science Magazine* and other related science publications. It holds an annual meeting and provides it members with a variety of fellowships, grants, and prizes. The association's major science education reform effort is *Project 2061* (AAAS, 1997).

Association for Supervision and Curriculum Development (ASCD)

The Association for Supervision and Curriculum Development (ASCD) (http://www.ascd.org) is a very large international, nonprofit, nonpartisan education association committed to the mission of forging covenants in teaching and learning for the success of all learners. Founded in 1943, ASCD provides professional development in curriculum and supervision; initiates and supports activities to provide educational equality for all students; and serves as a world-class leader in education information services. Members of ASCD includes superintendents, supervisors, principals, teachers, professors of education, school board members, students, and parents who share a commitment to quality education and a belief that all students can learn in a well-planned educational program. The association holds an annual conference and offers a variety of programs throughout the year. It produces a variety of publications including journals, newsletters, books, and audio and videotapes. Its regular publications include *Educational Leadership*, *The Journal of Curriculum and Supervision*, and *Education Update* (ASCD, 1997).

Association for Educational Communications and Technology (AECT)

The mission of the Association for Educational Communications and Technology (http://aect.org) is to provide leadership in educational communications and technology by linking professionals holding a common interest in the use of educational technology and its application to the learning process. The association is dedicated to the improvement of instruction through the utilization of media and technology. It provides a forum for the exchange of information among professionals in educational technology: audio-visual media, library and microcomputer specialists; education administrators; researchers; teachers and professors; learning resource specialists; curriculum developers; television producers and directors; and a variety of other professionals who require expertise in instructional technology. The association holds annual conferences and regional workshops for its members. It produces a variety of publications including books, a newsletter, and videotapes. Its major publications include *TechTrends*, and the *Educational Technology Research and Development* journal, published quarterly (AECT, 1997).

American Society for Engineering Education (ASEE)

The American Society for Engineering Education (ASEE) (http://www.asee.org) founded in 1883, is a nonprofit organization dedicated to improving all aspects of engineering education. Its members represent every discipline of engineering and engineering technology. It includes faculty and academic administrators as well as industry and government representatives. Its mission is to promote engineering and engineering technology by promoting excellence in instruction, research, public service, and practice; exercising worldwide leadership; fostering the technological education of society; and providing quality products and services to members. Its major publications include, the magazine *PRISM*, and its scholarly professional journal, *The Journal of Engineering Education* (ASEE, 1997).

Graphic Arts Technical Foundation (GATF)

The Graphic Arts Technical Foundation (GATF) (http://gatf.org) is a nonprofit, member-supported, and member-directed organization committed to research of the evolving print production processes and helping printers use new techniques effectively. It serves the graphic communications community as the leading source of technical information, education, and services about lithography and other printing processes. The organization is continually developing new products; technical, library, and environmental services; and training programs to meet the evolving needs of the graphic arts industry. Its bi-monthly magazine *GATFWorld* keeps members informed about new graphic arts technologies and trends. GATF is also responsible for administering the very popular National Scholarship Trust Fund (NSTF). The NSTF is a not-for-profit, private, industry-directed organization that dispenses undergraduate college scholarship and graduate fellowship assistance to talented men and women interested in graphic communication careers (GATF, 1997).

National Association of Industrial Technology (NAIT)

The National Association of Industrial Technology (NAIT) (http://nait.org) was founded in 1967 as a nonprofit professional association dedicated to the improvement and expansion of Industrial Technology programs in institutions of higher education and the continuing professional development of graduates of these programs. NAIT holds an annual conference for its members and offers them a variety of publications, including the quarterly published *Journal of Industrial Technology*. The journal contains both refereed and non-refereed articles of general interest to the profession. Other NAIT publications include, an Accreditation Handbook, a Baccalaureate Program Directory, and Convention Proceedings (NAIT, 1997).

National Science Teachers Association (NSTA)

Founded in 1944, the National Science Teachers Association (NSTA) (http://nsta.org) is the largest organization in the world committed to promoting excellence and innovation in the teaching of science. The Association serves as an advocate for science educators by keeping its members and the public informed about national issues and trends in science education. Members of NSTA include science teachers, science supervisors, administrators, scientists, business and industry representatives, and others involved in science education. The association produces many publications including books, five journals, a newspaper, and a magazine for children called *Dragonfly*. The association conducts national and regional conventions. Also, the association is involved in cooperative working relationships with numerous educational organizations, government agencies, and private industries on a variety of projects (NSTA, 1997).

Society of Manufacturing Engineers (SME)

Founded in 1932, the Society of Manufacturing Engineers (http://sme.org) is an international professional society dedicated to serving its members and the manufacturing community through the advancement of professionalism, knowledge, and learning. SME offers its members many resources they need to compete in a rapidly changing manufacturing environment. The association provides its members with trade publications, quarterly technical publications and technical reports to help keep them current on manufacturing related applications, processes, technology developments, methods, and regulatory issues. SME offers eleven in-depth association subgroups on specific technologies (e.g., Computer and Automated Systems Association of CASA/SME to meet the needs of members with similar interests. In addition, SME offers its members an opportunity to become professionally certified as a Certified Manufacturing Technologist (CmfgT), Certified Manufacturing Engineer (CmfgE), or Certified Enterprise Integrator (CEI) (SME, 1997).

Other Professional Growth Opportunities

Professionals are individuals who continue to better themselves. They strive to stay current and informed in their chosen field. Professionals who choose to further their education can open "new doors" in their careers. New positions (e.g., at a college or university) or changes in assignments are available to those who choose to complete either a master's or doctoral degree. To help those wanting to further their education, many colleges/universities offer graduate assistantships or fellowships that help to defer the cost of obtaining an advanced degree.

There are many growth opportunities available to technology education professionals. State and college/university-sponsored workshops offer individuals an opportunity to learn about new technologies or curriculum projects influencing the field. For those with specific technology education related interests, there are possibilities of internships or summer jobs. For example, if you teach in the area of communication technology, you may take a summer job or internship in an industry related to communication (e.g., TV or Radio Station). Also, acting as a consultant within your field offers excellent growth opportunities. As a consult, you are considered an "expert" in a chosen area or on a selected topic. Being an expert forces you to stay current—you must be aware of all developments, issues, and trends that are impacting your chosen area of consulting.

As a professional, you must continually obtain and read a variety of publications. Reading association-sponsored publications as well as other publications (e.g., newspapers, national news magazines and trade magazines) helps you to grow professionally. Reading helps keep you current on national and international affairs as well as important issues and trends in your field.

Another growth possibility for the technology education professional is to become involved in student-sponsored associations or clubs. Serving as a education club advisor at either the collegiate or K-12 level can be a rewarding experience. Clubs and student organizations can provide students with opportunities to learn more about technology, and how an organization functions. In his summary on why technology teachers and students should partici-

pate in student organizations, Litowitz (1995) lists the following benefits, "1. the development of leadership abilities, 2. professionalism, 3. competitiveness, 4. program recruitment, 5. curricular innovation, and 6. personal satisfaction" (p. 27).

Many schools today have their own technology education clubs which may also be affiliated with a national association. The Technology Student Association (TSA) is the only student organization devoted exclusively to the needs of technology education students who are enrolled in, or have completed technology education courses. Its mission is to prepare them for the challenges of a dynamic world by promoting technological literacy, leadership, and problem solving, resulting in personal growth and opportunity (TSA, 1997).

Professionals in technology education must continually look for other organizations or corporations that offer growth possibilities through their sponsored activities or services. For example, FIRST which stands "For Inspiration and Recognition of Science and Technology" sponsors annual robot competitions for high school students. FIRST is a nonprofit organization whose mission is to generate an interest in science and engineering among today's youth (FIRST, 1997). The National Aeronautics and Space Administration (NASA) is another excellent example of an organization for those in technology education. Available on-line, it offers a wealth of information on aeronautics and space related topics (NASA, 1997). An example of a corporation that is concerned with technology education is the Learning Institute for Technology Education (LITE). LITE is nonprofit Michigan corporation that serves as a center of resources for Technology Education. It publishes related technology education information, and offers in-service workshops for teachers (LITE, 1997).

Grant writing also provides professionals in technology education with growth opportunities. For example, grants can provide individuals with new materials and equipment to upgrade their programs. They can fund special interest projects or provide the individual with money to develop a new curriculum, or attend in-services and conferences. Many states, foundations, as well as national organizations and associations offer grant opportunities.

Professionals in the field of technology education must continually seek out possible funding sources and put forth the effort to write a proposal. As Reeve and Ballard (1993) noted, "proposal writing is not difficult, and once learned it can become a very enjoyable task" (p. 31).

Further growth opportunities are available to those who become members of professional fraternities associated with education or technology education. For example, Phi Delta Kappa (PDK) is an international professional fraternity for those involved in education. Its purpose is to promote quality education, with particular emphasis on publicly supported education, as essential to the development and maintenance of a democratic way of life. It provides it members with many professional growth opportunities and timely publications (PDK, 1997).

The premiere fraternity for those professionals associated with technology and technology education is Epsilon Pi Tau (EPT). It is an international honorary fraternity founded in 1929 at The Ohio State University by William E. Warner. Its purposes today are to promote the values and contributions of professionals in technology. EPT provides a medium for the professional development and recognition of individual members for leadership and achievement. Membership into the fraternity is achieved by invitation to those who exhibit outstanding leadership accomplishments, leadership potential, or academic accomplishments. Fraternity publications include, *The Journal of Technology Studies,* a refereed journal, a periodic newsletter, and monographs (EPT, 1997).

Summary

There are a variety of professional associations, organizations, and other growth opportunities for those professionals in the field of technology education. The chapter began by describing the roles of associations and organizations in relation to personal professional development. Next, the importance of joining and encouraging others to join a professional association or organization was examined. Professional associations and organizations in technology education were then reviewed, including an in-depth review of the ITEA. A brief review of state and local associations and organizations was then presented. Other professional associations and organizations available to technology education professionals were then reviewed. Finally, the chapter concluded by reviewing other growth opportunities for those in the field of technology education.

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Chapter 6

Developing Effective In-service for Technology Education

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This chapter provides a basic review of in-service activities and teacher enhancement programs used in technology education. This review should assist individuals in meeting their in-service needs by providing organizational strategies, program rationale, and implementation strategies. Throughout this chapter, the term "in-service" is used to refer to all types of professional development activities.

The Need for In-Service

Recent graduates in technology education have been influenced to develop and implement technology education programs in the public schools across the nation. Most new teachers have subscribed to the new philosophy, curriculum, and instructional practices. Technology education is on the cutting edge of educational reform at both local and national levels. Educators are enthusiastic about the educational potential of new technologies and activities that are being introduced in the classroom. The technology education hands-on laboratory environment is a perfect vehicle for interdisciplinary and team teaching activities. These activities are based on the concepts of applied math, science, language arts, and technology.

The teaching of technology education requires a major change in content and delivery from the way industrial arts programs were traditionally carried out. According to Boser (1991) this transition and implementation requires a change in philosophy, new learner outcomes, a new curriculum, new strategies and methods, and the constant updating of teachers and content to keep pace with tech-

nological advancements. The key word here is "change." It is a bittersweet word depending on how drastic the change process will be in the future. Change is usually a difficult process and the first step, which may be the hardest, is the realization that changes must occur. To successfully implement technology education, leaders need to better understand the change paradox. Education does not change easily or quickly. Sarason (1971) pointed out that: "Good ideas and missionary zeal are sometimes enough to change the thinking and actions of individuals; they are rarely, if ever, effective in changing complicated organizations (like the school) with traditions, dynamics, and goals of their own" (p. 213).

Harris (1975) defined in-service education as: "Any planned program of learning opportunities afforded staff members of schools, colleges, or other educational agencies for purposes of improving the performance of the individual in already assigned positions" (p. 21). Further terms used synonymously with teacher in-service education are on-the-job training, teacher renewal, staff development, continuing professional growth, or professional development.

Schiffer (1980) noted that knowledge and innovations are not the key to change. Producing positive change in education is the result of meaningful and continuous staff development of teachers. Schiffer goes on to write that the focus of this staff development should be to change individual attitudes, knowledge, and skills. In addition, the staff development model must be eclectic in its use of models and strategies of change.

The training, updating, and inspiring of teachers-in-practice is a large field of endeavor, heavily criticized, extensively pursued, and vitally essential. In-service training sessions, after-school courses for credit, extended course work for degrees, conferences, and workshops all compete for the attention and favor of practitioners. All contribute, often one-by-one, to the upkeep and maintenance of the teacher-in-practice (Cordeiro, 1986, p. 705).

Minks (1968) and Supranovich (1980) reported that the teacher is the most important element in the school system, and the teacher should be the focal point of school improvement and change efforts. According to Parkay, (1976) only the teacher can

make the important decision to change his/her current practices, and this has to take place before their school can improve.

Teachers in all subject fields need assistance of some kind as they prepare to make modifications to their programs. Many technology teachers have not been prepared to deliver a quality technology education program. This premise is supported by Wood, McQuarrie, and Thompson (1982) who noted that the best possible undergraduate preparation or graduate education cannot serve professional educators for more than five years in this age of rapid change and expanding information. They go on to report that the moment educators leave their training institutions they embark on a journey toward obsolescence. Educators must realize their careers are a lifelong pursuit, and they must keep up with the expanding knowledge base of technology.

Maley (1987) noted that the change from industrial arts to technology education began 20 years ago, but only with a small number of programs and innovative teachers. Now that the profession has a mandate to change to technology education, it faces a "gargantuan" task. The diversity in the backgrounds of technology educators will require new and innovative methods to create and maintain the change required for curriculum reform. Staff development is needed to help teachers "move away from the security of what has been previously taught. Changes will also be required in teacher philosophy, attitudes, and years of instilled practice" (p. 6).

Many commissions and experts agree that the time has come to include the teaching of technology in the K-12 environment (Tracey, 1993). The Carnegie Report on Secondary Education concluded that all students needed the study of technology. Technology and the changes it brings will dramatically shape the lives of all students. Ernest L. Boyer (1985) pointed out that industrial arts education could play a crucial role in this transformation of American education. Boyer called for the technology education content identified in the Jackson's Mill Curriculum Project to be implemented. The barriers between the academic and vocational education programs should be broken down. Academic as well as vocational programs should be preparing students for a common

goal; namely, education for a technological society. In the past, academic subjects have focused purely on theoretical study, while industrial arts has been focused strongly on the technical side. In relation to this Waetjen (1989) noted that:

> We entrust technology education to the mislabeled shop teacher. Technology is not taught as part of the humanities, the arts, or the policy sciences. It is the industrial arts profession's commitment to change to technology education that will best serve students. (p. 8)

Efforts toward implementation of technology education have aroused considerable interest in the curriculum area and have fostered the rapid growth of contemporary resource materials. However, the process of implementing a technology education program is a complex undertaking. It also requires a change in philosophy, curriculum, and instructional practices. According to Boser (1991), the dissemination of these new ideas and practices is largely contingent upon effective in-service programs. If students are to be properly prepared, so must their teachers. In-service and professional development activities are an essential element in assisting classroom teachers to develop and update their technological and instructional capabilities. In-service activities should also help to ease the transition from industrial arts programs to technology education.

Clark (1989) pointed out that changes have been made in name only, and unit shops remain the primary delivery method in the field. Wilkinson (1989) echoed this position by stating that little progress has been made toward the implementation of a new philosophy—a philosophy directed to the teaching of technology education. He believed teachers had become lost in the transition. Colleges and universities have the expertise and are in the unique position to help teachers with the transition from industrial arts to technology education. Teacher educators possess the opportunity to provide classroom teachers with the philosophical and practical knowledge to help implement exemplary technology education programs.

In-Service Models Used in Technology Education

There have been several effective in-service models used in technology education to bring about positive change. The literature indicates that many types of staff development/in-service programs have been attempted, some with recognizable success. Hoyle, English, and Steffy (1985) offered the following definition of staff development:

> A process designed to foster personal and professional growth for individuals within a respectful, supportive, positive organizational climate having as its ultimate aim better learning for students, and continuous, responsible self-renewal for educators and schools. (p. 146)

They also further explained staff development as a complex and dedicated process. Effective staff development was described as: "not confined to one or two in-service days...promotes true school improvement...long-term planning, commitment to specific goals...and tender nurturing" (p. 145).

Bell and Peightel (1976) identified five major areas for in-service education that concerned teachers. The major areas included: 1) developing alternative learning environments; 2) meeting teachers' individual needs; 3) creating informal non-threatening in-service environments; 4) improving basic teaching skills; and 5) exploring new methods, media, and materials (pp. 10-16). These needs are still appropriate for technology teachers today.

Boser and Daugherty (1993) conducted a national study to determine the extent that colleges and universities were integrating new technology education curriculum activities into teacher in-service and professional development programs. They reported that the in-service topics included a wide range of contemporary issues in technology education, from action labs to using Lego educational products. The majority of the topics, however, were designed to expand the teacher's knowledge and skills in technological areas. The twenty-nine respondents to the study indicated that these areas included computer applications and operation; robotics; Principles

of Technology; CAD; Mathematics, Science and Technology; CNC; and, desktop publishing. Boser and Daugherty also sought to find out what types of instructional methods were being used to deliver in-service activities. Their findings indicated that hands-on activities, small group interaction, demonstration, and lecture were the primary methods used for delivery of in-service activities.

Nineteen institutions in the study reported that the average attendance at their in-service sessions were in the range of 11-20 teachers. Of these sessions, the majority (87 percent) were scheduled on weekends. Other delivery techniques included spring conferences, local association meetings, occupational experiences and independent study (Boser and Daugherty, 1993).

The Technology Education Enhancement Center

The Technology Teacher Enhancement Center was established at Central Connecticut State University in New Britain, Connecticut in 1990. This successful program was conducted for the Connecticut technology educators to assist them in the transition from industrial arts to technology education. Starting with twelve teachers in 1990, the Center has grown in popularity and currently operates separate programs for middle and high school teachers. Presenters at the Enhancement Center have included national leaders in technology education, as well as local public school teachers. These presenters have covered a wide array of important in-service topics for technology education such as: curriculum enhancement, teaching methodology, assessment, and innovative teaching practices.

The Enhancement Center uses a twelve-week, full-day format. This approach allows participants to obtain a wealth of knowledge about curriculum resources, new laboratory activities, group learning strategies, and specific national trends. Included in this instruction is a one- and five-year scope and sequence model illustrating the need for technology education and curricula reform. The scope and sequence model is often used by in-service participants to justify future curriculum changes at the local school level.

As of spring 1998, 51 percent of the 170 Connecticut school districts have participated in the Enhancement Center, and the

majority of school districts have participated several times. The Enhancement Center has provided much visibility for the University, strengthened the technology education department's position with the public schools, and it has allowed the faculty to provide further in-service assistance to the state's schools. In follow-up studies conducted by Tracy (1993), the Enhancement Center has faired very well. Connecticut technology educators have ranked the center as their primary choice for professional development activities.

Planning In-Service Opportunities

Successful in-service programs directly involve participants in decisions that affect their professional growth. Relative to this, Mertz (1983) pointed out that when teachers help to design activities for in-service, select resources and formats, and work on the evaluation results, they feel ownership in the program. Teachers soon realize that in-service programs are designed to meet their needs when designed from such a perspective.

One method to achieve this involvement is to use a planning committee, especially if the majority of the committee members are teachers. In this way, the committee can improve the quality of in-service programs by providing multiple perspectives of both teachers and administrators, encouraging cooperative planning and implementation, and reinforcing the idea that teachers are responsible for their own professional growth. Mertz (1983) further stated that there are new and changing demands placed on school personnel, and it is often difficult to design meaningful in-service activities.

In-service programs must be based on participants' needs. This can be accomplished by conducting a needs assessment as part of the planning phase for building a foundation for all staff development (Lentz, 1983). The strength of a program as well as its evaluation efforts depend on proper planning, and planning depends upon valid assessments. Collecting reliable information is fundamental in meeting the participant's needs and expectations, as well as developing effective programs. Fulfilling the expectations of the participants is often cited as the primary concern among staff

developers and participants. A sound needs assessment procedure allows staff development leaders to establish priorities and design appropriate activities. Needs assessments however, are dependent on the cooperation and support of all that will be involved. Also, using different sources of information such as teachers, students and administrators offer a greater understanding of how these needs can be met. Any assessment effort is only as good as the follow-up that results. A good needs assessment should be capable of altering current conditions, not merely compounding them. It has been said that needs assessments are never completed, needs and attitudes change frequently. Typically, personal and district needs change, so an ongoing assessment effort will be needed.

Greenfield (1983) supported the above viewpoint by stating that collaborative planning and the assessment of needs are part of an ongoing process committed to school improvement. The challenge for staff development leaders is to share responsibility for planning decisions and to collect accurate data so those appropriate programs may be delivered. Data-based decisions increase the chances for successful staff development programs. The use of collaborative planning makes it possible for various groups or their representatives to satisfy many diverse issues and concerns.

Once needs are identified, objectives can be determined. The objectives will be used to measure the results of the in-service program. The more specific the objectives, the easier it will be to design learning activities and obtain resources. The objectives also serve to dispel unrealistic or negative expectations. Lastly, objectives inform the participants of expectations, provide the presenters with detailed ideas to what is needed at the workshops, and establish a basis for subsequent evaluation and follow-up.

In selecting human resources to deliver the program objectives, local teachers and administrators tend to be more effective than outside consultants. Consultants need to be informed of the participants' expectations if they are to conduct a successful program. Most consultants will structure their presentations to their audience if they are given the program's objectives and anticipated outcomes.

Miller-Parker (1993) pointed out that trainers who are taking part in the staff development programs need to design in-service activities that are realistic in terms providing resources and implementing change. In this way, teachers will feel that their investment of time and energy will result in obtaining new knowledge. Miller-Parker further stated that short single session staff development approaches are not as effective as longer-term multiple-session approaches. This is because longer approaches enable practitioners to acquire and practice newer concepts and skills.

Miller-Parker also stated that activities are more likely to be successful if the participants choose their involvement and when the training is linked to their professional development plan. The important factors that will increase the likelihood of long-term behavioral change include:

1. *Personal factors*—provision for motivation, consideration of the participants' learning abilities and attention span, and subject matter relevant to the participants' personal and job needs.

2. *Instructional factors*—appropriate course design and methodology, good balance of theory and practice, credible and effective instruction, and follow-up after instruction.

3. *Organization factors*—a secure and supportive environment, efficient use of time and timing, and a fit between procedures, materials, content, participants, and program goals. (p. 9)

Hawthorne (1983) reminds us that successful staff development programs require a conceptual framework that is firmly grounded in theory and research, a governance system that involves all affected parties and a decision-making process that is based on the best information available. Teachers are the major influence on classroom life and learning. In order to plan dynamic staff development programs, it is important to understand how and why teachers teach the way they do. Furthermore, staff development programs that do not consider teachers in at least three contexts—the personal, the professional and the organizational—are less likely to produce change. Significant changes are more likely to occur when staff development programs focus on individual and

organizational growth within the school. Slater and Cibrowski (1985) summed up the importance of offering beneficial in-service programs by stating that in-service is one of the keys to educational excellence. Therefore, teacher educators should take a leadership role in planning, conducting, and evaluating these programs.

Program Implementation

Program implementation should occur in a straightforward and unpretentious manner. An effective delivery system can help to enhance communications between staff development leaders and participants. Vacca (1981) noted that the behaviors of presenters could make or break staff development experiences. This is because teachers want ideas, strategies, and materials that relate directly to their own classrooms. Adult learners respond favorably when their prior knowledge and experiences are integrated into the presentation or learning experiences. Also, those activities that directly assist participants with their job-related concerns have the greatest impact.

School-based staff development has emerged as a promising means of providing professional development opportunities for teachers. If staff development leaders plan and prepare well, program implementation can be completed successfully. Vacca (1981) also pointed out that program implementation must involve the staff development leaders, the presenters, and the participants in an interactive process where decisions evolve to meet the learner's needs. No element of implementation stands alone. In the final analysis, program implementation invites change within the school's basic organization.

Fessler (1980) provided a framework for implementation of the planning process. The framework consisted of three strategies: (a) prioritizing needs, (b) cyclical implementation/staff development planning, and (c) assessing alternatives (pp. 31-32). Within the implementation process, Fessler offered an eight-step process in planning staff development activities, including studying options, making decisions, designing, implementing, and evaluating in-service activities, implementing a project, evaluating a project, and gathering feedback information. (p. 34)

In order for any in-service program to be successful, it is necessary for administrators to support the entire concept and attend themselves. Administrators must provide needed planning time, access to facilities and equipment, financial support, and allow individual teachers to participate. Effective communication is the key to a successful in-service program regardless of its size or format.

The activities of the staff development program are the most important part of the process. The activities are the means of reaching stated goals and objectives. Castle (1988) identified four attributes that should be considered in the implementation of staff development activities. These activities included: (a) selection criteria, (b) reflection on goals and objectives of the staff development program/plan, (c) resources, and (d) formats and learning objectives.

Many current in-service offerings may not be achieving their intended purpose of facilitating classroom change. Yatvin (1987) described current in-service models in this manner: "Two fifths is show, two fifths are ideas and products that are too abstract to apply easily, and the remaining one fifth is hopefully useable material, but often ephemeral, slipping from the memory before it has a chance to be used" (p. 92).

Blair (1988) noted that "teacher in-service activities are weak due to the fact that the workshop leaders are often beleaguered administrators or supervisors who do little preliminary planning" (p. 55). Lodge (1989) added that "another problem to consider is the specific content of the workshops and in-service programs that are envisioned, too many courses are just poorly planned" (p. 18).

Cruickshank, Lorish, and Thompson (1979) suggested that the traditional model of in-service education, rather than eradicating deficits and providing updated curriculum and methodology, is seen by the classroom teacher as a method of obtaining college credit and extending professional development. Lodge (1989) suggested that "teachers are more likely to choose the least expensive and most convenient in-service sources, instead of extended, challenging, or applicable course work" (p. 18).

Boser and Daugherty (1996) noted that in order to overcome the above problems of in-service activities, workshop planners must listen to the customer, the classroom teacher. Historically,

teachers have either not been involved or have not taken the initiative to participate in the planning and development of in-service activities. Colleges and universities can prepare more effective in-service workshops and enhance their position by actively involving classroom teachers in the planning and development of in-service programs.

Technology teacher education departments at colleges and universities are in a unique position to offer change-based in-service workshops while satisfying mandated attendance requirements. These institutions provide contemporary pre-service technology teacher education programs. In doing so, university personnel are aware of state-of-the-art technology programs and instructional methods. The linkage between the university and practicing teachers is obviously mutually beneficial. Through collaboration, in-service programs may be developed that meet current needs while continually moving the local technology program toward the most contemporary examples of technology education (Boser and Daugherty, 1996).

Boser (1991) in advocating state-wide curriculum change in technology education, strongly supports the idea of in-service. He advocated conducting in-service programs using the "teachers-teaching-teachers" method, paying participating teachers, and targeting the needs and concerns of teachers.

When considering offering in-service programs, logistics is an important consideration. In order to have the least amount of interference with the school day, an after-school or early evening activity seems to be the best option. When scheduling a once-a-year program, early spring programs provide for more planning and preparation time and usually better weather conditions. If income needs to be generated from the in-service program, expenses can be broken down to a per person cost based upon the estimated number of attendees. Usually an individual registration fee is used to cover these costs. Program printing, meal functions, and refreshments usually account for the largest portion of expenses. It is important that expenses and income are balanced. Other expenses might include such items as honorariums, travel expenses, and rooms for speakers. The sponsoring agency or school district can often handle printing, duplication, and postage charges.

In-service program announcements must be sent to each potential participant well in advance of the program date. This informative packet of materials must include a tentative program and time schedule, a pre-registration form, and a map. If additional media coverage is desired, one must plan and provide necessary press releases and requests for media coverage.

The existing facilities must be considered before deciding where to hold the in-service program. There is a definite need to match facilities with the program format. Depending upon the specific program planned, facility considerations could include:

1. A registration area with maybe a light refreshment area.
2. A large open area for a technology fair with sufficient electrical circuits.
3. Classrooms for small group workshops and/or special interest sessions.
4. An auditorium or a large group meeting room for a general session.
5. Cafeteria facilities.
6. A large room to host a supervisor's and/or administrator's luncheon and seminar.
7. Ample parking.
8. An accessible loading/unloading area.
9. A well-marked or identifiable entrance area.
10. Audio visual aids and equipment.
11. Adequate furniture to meet program needs – especially tables.

In-service programs need to be planned around the needs of the group to be served. Those responsible for the program design must obtain a consensus as to its format, time, and duration. In many instances, the budget will be a key factor in program design. The program should be tailored by the availability of the participants and their respective school calendars.

Evaluation and Reassessment

Evaluation is the most important, yet most neglected aspect of staff development. It is important because it indicates whether the goals have been met. In order to fulfill its purpose of helping to improve decision making, evaluation needs to be an integral part of the initial planning process.

Mertz (1983) purported that evaluation is not only a conclusion, but also a new beginning—a reassessment that leads to a refinement of objectives. Rather than being a destination, evaluation is a map or a progress report that answers two basic questions: Where are we now? Where do we go from here? Methods of evaluation will be effective only if they are part of an ongoing, systematic process. Program quality is directly related to how effectively the evaluation plan improves decision making. A major element in the evaluation process will involve decisions concerning follow-up activities to reinforce the participant's learning gains.

A staff development program constitutes a commitment or contract between the staff development leaders and program participants. The fundamental concern is to examine whether the activities are accomplishing the objectives and the participants' needs are met. Mertz (1983) suggested that the following series of conditions must be met:

1. The objectives have been clearly delineated.
2. The means for fulfilling the objectives have been carefully planned and structured.
3. The evaluative instruments have been developed to measure specific results.
4. The standards to determine the program's success have been established.
5. The data have been analyzed, interpreted, and presented in clear and understandable terms.
6. The plans for follow-up activities have been included as part of the staff development program. (p. 65)

Evaluation is a continuous process where program decisions are made and plans revised. It involves data collection and monitoring as well as formative and summative evaluations. According to Joyce (1981), the ingredients for improving schools through staff development are readily available. These include: skillful leadership, collaborative planning and decision making based on accurate assessments and evaluations, participant involvement and ownership, and the continuity of effort in a collegial atmosphere that encourages personal and professional renewal.

The development of effective in-service programs requires extensive planning, careful delivery, and follow-up of the participant's success in the teaching setting. In-service programs must do more than give teachers information, demonstrate innovations, and/or provide guided practice. To be effective, there must be opportunities for teachers to practice and receive feedback and coaching in the field.

The lack of effective practice, feedback, and coaching in the field has been a major flaw in the in-service model that has been perpetuated by workshop presenters. However, Browne and Keeley (1988) indicated that effective follow-up is a problem often overshadowed by poor presentation planning and methodology. The authors suggested that the lecture method of instruction is an overused presentation method used primarily because of ineffective planning. They also propose that instead of relying on lectures to convey information, teachers need "time to design a plan for how the suggested improvement could be integrated into their classroom" (p. 98).

Marshall (1988) pointed out the benefits of staff development evaluation. Purposes of staff development evaluation identified by Marshall included providing information for: (a) program improvement, (b) accountability, (c) planning, (d) validating theoretical models, and (e) mentoring to staff developers (pp. 2-3).

As previously illustrated, the literature pertaining to staff development strongly suggests that one-shot learning experiences are ineffectual. Joyce and Showers (1980) stated that one of the important conditions for successful in-service training is the degree of fol-

low-up. Their studies indicate that without "coaching for application (hands-on, in-classroom assistance with the transfer of skills and strategies to the classroom)," there is little chance any of the new knowledge or skills will be implemented in the classroom (p. 380).

Evaluation of staff development programs was described by Bishop (1976) as a continuous process. The evaluation process should serve the objectives as detailed in the program "rather than the demands of the evaluator or the instrumentation" (p. 145). Slater and Cibrowski (1995) urged in-service program planners to develop an evaluation form to determine if the objectives of the program were met. One could possibly include pre-tests and post-tests or questionnaires. They encouraged obtaining information from the attendees as to what they liked best or least about the in-service, as well as suggestions for future programs. One should also consider creating a research design into the evaluation process to generate a database or to determine the program's effectiveness.

The Future of In-Service in Technology Education

Regardless of location, valuable in-service and appropriate staff development activities are difficult to deliver to school personnel. No matter the setting, there are many factors that contribute to this problem, such as the variance of staff needs, the quality of available personnel to provide these services, and the ability to plan adequate follow-up activities that augment the teaching/learning accomplished through in-service or staff development. These types of concerns must be addressed by a dynamic, responsive system of staff development. Delivery methods will certainly change as we enter the telecommunications era, yet good practices will continue to be utilized (Williams, Gold, & Russell, 1995).

Barker (1991) pointed out that distance education is becoming a potential alternative delivery method for in-service activities. School reform, state-sponsored curriculum reforms, state fiscal reductions, potential teacher shortages, and the major advancements in telecommunication technology have all helped to make distance education a natural option for in-service programs. Currently, all 50 states have incorporated some type of distance

education plan. Because there are a number of delivery systems available for distance education, it is important to determine which system is best for meeting in-service activities.

Barker (1991) suggested that school systems address the following questions prior to selecting a distance education system:

1. Is the system to be used primarily as enrichment, or will it be used as the chief means of instruction in a particular class or curriculum?
2. Will the system be expected to fulfill state-mandated curriculum requirements, or will it be used only to offer elective courses?
3. Will the system be used by specific types of students (e.g. advanced placement, homebound, or general course students), or will the system be used by all types of students?
4. Is the system expected to be used to deliver in-service training for the staff, and/or to provide classes for the community? (pp. 5-6)

According to Rios (1986), delivery options for distance education can fit into four categories. These categories were print-based, audio-based, video-based, or computer-based courses. Rios also noted several of the most popular technologies being used today are audio teleconferencing, videotaped lessons, interactive video, and the use of computer networks.

The use of modern technology and distance learning may help to overcome rural barriers such as terrain, distance, or weather. By using distance learning in their education programs, university and public school personnel can collaborate to promote and bring about innovative pre-service, staff development, or in-service programs. McCaslin and Torres (1993) supported this idea by stating that microcomputers used in conjunction with telecommunications provide a number of instructional opportunities for rendering quality in-service education. Coulson and Harmon (1989) noted that satellite technology now opens access to in-service opportunities that were previously limited to only those who could reach a college or university. Now, teachers in even the most isolated areas can easily receive top-quality in-service training.

Foell (1990) stated that distance learning strategies are becoming more commonplace. Advocates of alternative delivery systems argue that telecommunications and computer technology increase faculty productivity and reduce travel time while meeting the professional development needs of in-service teachers. Foell also stated that an electronic learning delivery system delivered by the University of Georgia actually resulted in a 34 percent reduction in costs.

Innovative strategies need to be developed for school personnel who cannot travel great distances for professional development purposes. Chancey (1995) used the video conference technique to deliver instruction to fifty-four Florida administrators. Five sites were utilized across the State of Florida, which lessened travel time and expenses, plus allowed for convenience in participation.

Summary

The public needs to realize that quality in-service or staff development for teachers and administrators results in quality education for students. Staff development programs must be an ongoing aspect of school life. Principals and supervisors must continue to be a driving force in helping teachers achieve and maintain new teaching and classroom management skills.

Miller-Parker (1993) stated that in-service activities and instruction are more likely to be successful when the participants choose their own involvement and when training is linked to an individual's professional development plan. Participants whose involvement is forced will be uncooperative and will likely gain very little from the experience. A broad range of choices for in-service activities must be made available. Teachers should be encouraged and assisted in designing a professional development plan that will best suit their needs.

The need for in-service programs to assist with the transition to technology education will continue in the future. Changes in technology, innovations in content and delivery, and changing education requirements, add to the need for continuous updating of

classroom teachers. In this chapter, an explanation of in-service programs was provided that described their funding, effective practices and procedures, as well as helpful suggestions to assist in planning prospective programs.

A case was also made for the need for collaborative planning between teachers and program presenters. Effective programs were based on teacher needs, used different delivery strategies, and carried out an assessment strategy and/or follow-up. When implementing staff development programs, communication is a key factor. Program goals and objectives as well as activities must provide some flexibility in order to meet the participants' needs. Effective in-service programs made sure that some form of assessment and follow-up was included. This practice was found to insure program improvement.

The future looks bright for in-service programs. The need for professional development for technology education will always be present. Most in-service providers envision quality distance learning programs using the best that technology has to offer as the future model for the delivery of in-service opportunities.

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Chapter 7 Professionalism, Public Relations, and Politics

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Public relations have been inextricably tied to professionalism in education. The technology educator must employ effective strategies and actions for communicating goals and information in order to garner support of key publics, inform constituents of the role, purpose and value of technology education in public schooling, and build alliances to support professional efforts. Informing key publics of the need for and value of technology education for all students is essential to the growth and continuing evolution of the field. Without public understanding of the meaning and nature of technology education, the field will ultimately devote its energies to developing its identity over enhancing practices. This Chapter seeks to promote the importance of public relations as a part of professional activities, to provide strategies that can be used to promote technology education programs, and identify the role of politics in successful public relations and program efforts.

The first section will present the definition and goals of public relations. This section will address the effect of goals at program, local, state, and national levels. The next section will present public relations strategies for promoting technology education programs. Identification of key publics and specific strategies using various media will be presented. The third section will describe technology education success stories and the impact of public relations on these successes. The final section will address the influence of government relations and political influences in technology education.

Public Relations Definitions and Background

Public relations are related to practices of social science and encompass a wide range of activities intended to communicate and inform various audiences. Public relations practice is defined as, "the planned and sustained effort to establish and maintain goodwill and mutual understanding between an organization and its publics" (Jefkins, 1994, p. 7). Public relations theories are based on the way organizations and/or its members communicate, and are built upon communication theory, organizational theory, and theory of organizational systems and structures. Theories tend to be either normative or positive theories. Normative theories prescribe how organizations should use communication to practice public relations, while positive theories of public relations, explain how people in organizations behave (Grunig & Grunig, 1989). Public relations theories have drawn from communications research and in particular, structural and systems theories of organizations in relation to the external environments. Thayer (1968) introduced the concepts of synchronous and asynchronous communication to help explain the role of communication in public relations. Synchronous communication establishes communications that mutually benefit the organization and the public. Asynchronous communication is often one-way and intended to benefit only the organization.

Public relations grew out of the need to establish corporate identities and inform the public. Among the earliest examples of public relations were forms of corporate identity. This kind of identification has grown into systems of logotypes, typography, uniforms, dress or other symbolic forms (Jefkins, 1994). Today, public relations activities include organizing and developing action plans, identifying target audiences, conducting field research to determine needs and interests, analyzing trends, and communicating information using a variety of media.

Wilcox, Ault, and Agee (1989) identified key characteristics of public relations:

1. Public relations is deliberate.

2. Public relations is a planned and systematic activity.
3. Public relations is based on policies and individual or group performance.
4. Public relations is designed to serve the public interest.
5. Public relations is part of management and decision-making functions.
6. Public relations involves two-way communication.

Public relations is a purposeful communications-based activity. Its purpose is to influence others, develop awareness and understanding, provide information, and gain feedback. It is highly organized beginning with identification of a need or problem, development of proposed solutions, and a plan for communicating information to key audiences using specific media. Policies and practices of a group or organization guide public relations. In education, board and administrative policies have been developed regarding public relations for dissemination of information. Public relations involves more than meeting the needs of an organization; it is concerned with public interest and needs, and how an organization can achieve benefits for both the public and the organization. Key decision makers and management level personnel must include public relations as a key component in organizational activities. Decisions must be communicated effectively to audiences to gain understanding, trust, and acceptance. Communication must involve both dissemination of information and use of feedback.

Public relations differs from advertising in its purpose and engagement of target audiences. Advertising seeks to persuade through presentation of product or service attributes while public relations intends to communicate information and develop common understanding that serves the needs and interests of both the organization and the public. For technology education, public relations is crucial to developing public understanding of the meaning of technology education and how it differs from educational technology, how students will benefit from participation in technology education activities and the positive technical, societal, and environmental impacts of this educational exposure. Technology edu-

cation seeks to develop a citizenry literate about technology; public relations in technology education also must seek to develop a citizenry informed of the benefits of knowing about technology and how technology education programs can increase information and skill levels of all students.

Public relations is an integral part of professionalism. Technology education practitioners need to be able to communicate an organization's mission, its goals and key activities. They need to have good organizational skills, be personable, demonstrate personal integrity, exercise imagination, and show willingness to learn new ideas and perspectives. Conducting research and obtaining feedback are key public relations tasks as well.

Goals of Public Relations

The professional educator may engage in public relations for a variety of reasons. Generally the goals of public relations efforts center on communication. Public relations goals may involve message exposure, accurate message dissemination, publics' acceptance of the message, and change in attitude or behavior. In exposing publics to a given message, the professional educator must be able to prepare messages for two types of audiences—one that actively seeks messages and another that passively processes messages (Wilcox & Agee, 1989). Active audiences already have an awareness of or interest in a particular message and may be seeking additional information. Passive audiences must be persuaded and made interested in the intended message. Accuracy of information is extremely important; for example educational technology and technology education are often confused because the message disseminated is either not clear or accurate (i.e., misunderstood or lacking in comprehension). To say, educational technology is using computers is just as unclear as saying technology education involves using computers and other resources. Neither statement is entirely false but neither present the message accurately.

Public relations is an important function of the technology educator, at the program, local, state, and national levels. To ignore the role of public relations in teaching, administration, or in higher edu-

cation is to function in isolation, opening the door for misunderstanding, mistrust, and lack of support from various publics. Public relations goals for technology educators are to:

1. Communicate information concerning the mission, goals and exemplary practices of technology education.
2. Garner support of key publics through various media and activities.
3. Develop a relationship of mutual benefits with key publics.
4. Strengthen the image of the profession from within and with external groups.

At the national level, the International Technology Education Association has a Governmental Relations Committee whose purpose is to assist the profession in strengthening programs, building programs, and developing professional ties. This committee has conducted training seminars at annual ITEA conferences to empower technology education professionals to promoting the discipline and garnering support. The committee has recommended the following courses of action: 1.) Commit to developing technology education as a basic subject; 2.) Develop a "pitch" to sell the profession; and, 3.) Build relationships and promote funding (ITEA, 1994).

State Level Public Relations

At the state level, public relations is imperative in communicating program missions and priorities as well as obtaining necessary support and securing program funding. With numerous educational groups vying for limited funding and for prominence in school curricular offerings, effective public relations brings programs such as technology education to the forefront.

In Maryland, public relations efforts were carefully planned and systematically implemented to garner support for a high school graduation credit in technology education. Several developments provided impetus for promoting technology education as a Maryland high school graduation requirement. National reports such as *Nation at Risk* (1983) cited the need for states to strength-

en graduation requirements. Also, reports such as *Learning a Living: A Blueprint for High Performance: A SCANS Report for America 2000* (Secretary's Commission on Achieving Necessary Skills, 1992), concerned with employability of youth and changing work skills, referred to the need for changes in education. These reports influenced Maryland's education reforms, particularly in efforts to develop more rigorous graduation requirements. The goal for revising requirements was to better prepare learners for careers and/or further education; a changing workforce due to the increases in the service sector of the Maryland economy stimulated changes in educational programs and preparations.

In technology education, a number of developments influenced the inclusion of technology education as a basic requirement for graduation. In 1987, the Metro Area Supervisors of Industrial Arts and Technology Education, an ad hoc group assembled to address statewide concerns, called for a state level educational effort for technology education curriculum development and implementation. The Maryland State Department of Education funded a Technology Education Symposium Series, made up of teachers, supervisors, teacher educators, business representatives, and teachers from other school disciplines. Eight symposia were held between 1987 and 1991. The symposia groups established technology education content direction, and groundwork for program implementation in Maryland (Andrew, Gray, Smith, & Valesey, 1994).

In 1992, a formal proposal for a graduation requirement in technology education was submitted to the Maryland State Board of Education. In 1993, business and professional groups testified before the State Board of Education regarding the importance of technology education in delivering technological literacy and preparing students for work and citizenship roles. The Maryland State Board of Education approved a one credit technology education graduation requirement for all high school students. By September 1993, Maryland public school systems began offering courses to meet the new requirement.

In *Maryland Reaches for the Goals: A Report on Maryland's Priorities for Education and Progress Toward National Education Goals* (MSDE, 1993), the revised graduation requirements summary included technology education as described:

> The new requirements, the first high school revision of high school diploma standards since 1987, support the attainment of Goal 3 by requiring more challenging academic courses by eliminating the general track, and by mandating service learning. Under the new requirements, all students will take mathematics courses that contain at least basic algebraic and geometric content. Students will take three credits in science, and they will satisfy the requirement by taking courses in life, earth, and physical sciences that include laboratory study. Students will also be required to take a course in technology. (p. 20)

In addition, an advanced technology requirement was included. High school students not pursuing a vocational or academic program that includes two years of a foreign language had to earn two additional credits in advanced technology education.

In Maryland, technology education was defined as, "an integrated, experience-based program designed to prepare a population that is knowledgeable about technology" (MSDE, 1994, p. 3). For the purposes of this study, the technology education program will also be defined as a Maryland high school program whose courses are devoted to the study of technology and fulfill the technology education graduation requirement. Eight learner outcomes guide the curriculum developments and implementation of technology education programs at the local level. The technology education learner outcomes, in the form of goals, specify that students will:

- demonstrate knowledge and skills in the application of technology systems.
- demonstrate knowledge of the nature, impacts, and evolution of technology.
- demonstrate the ability to solve problems using technology.
- make informed decisions about technological issues.
- demonstrate safe use of technology resources, including tools, machines, and materials.

- apply science, math, and other areas to solve practical problems.
- apply knowledge of and perform tasks representative of technology-based careers.
- recognize multicultural and gender diversity in the evolution of technology (MSDE, 1994).

The learner outcomes provide the basis for developing technology education activities, implementing instruction, and assessing what students have learned. The outcomes distinguish a technology education course from courses in other school subjects.

Local and Program Level Public Relations

The ITEA Governmental Committee acknowledged the importance of grass roots efforts in promoting existing programs and building new programs. Goals at the local level may include:

1. Seeking support of administrators and boards of education for large scale changes in programs.
2. Developing business and industry partnerships.
3. Communicating a vision and mission of the technology education program to key stakeholders.
4. Building productive relationships with key publics.

Public relations at the program level requires a range of strategies and target audiences, from students, to parents, teachers, counselors, administrators, and community members. Building mutually beneficial relationships while communicating the importance of technology education requires visibility, diplomacy, and excellent communication skills. The technology supervisor and teacher must employ a variety of strategies to effectively inform their publics, promoting interest and understanding, as well as garner support.

Strategies for Promoting a Program

Technology educators need to develop a public relations plan as part of their strategic, management, or professional plan. Steps in developing a public relations plan consist of the following:

Identifying a problem or need. According to Wilcox, Ault, & Agee. (1989), problems are typically one of the following: overcoming a false perception of an organization or product, maintaining and improving an existing program to achieve a one-time objective, or for continuing an existing program. In technology education, misconceptions of technology education or negative perceptions of "shop," may be false perceptions maintained by various publics. Examples of one-time objectives may be developing a rationale and framework for technology education or garnering support for a new facility. Continuing existing programs are vital to maintaining a level of support for technology education programs and maintaining program visibility.

Defining the audience. Determining whether the audience is a broad general audience, an internal or external audience. Target populations may include: Colleagues, Administrators, Guidance Counselors, Boards of Education, Students, Parents, Industry and Business, Governmental Representatives, Community, Trade, and Professional Organizations, and Service Organizations.

Planning the public relations strategy. Determining the nature of communication, type of media to use, and the means to evaluate effectiveness.

Executing the strategy. Establishing a time line for development and implementation. Obtaining feedback from the results.

Assessing the results. Determining the effectiveness of the strategy. Revising the strategy or building upon the existing strategy.

Communication Strategies

Communication materials may take many different forms, depending upon the audience and the message communicated. Videos, for example, convey vision and mission through strong visual images and verbal cues in a short time frame. Business and industry representatives, boards of education, and parent groups can develop an awareness of, and interest level in, technology education from viewing a video.

Exhibits such as technology fairs offer opportunities for program visibility and display of exemplary program activities. Audiences such as parents, business and community leaders, other students and board of education members gain insight into program activities through such exhibits.

An oral presentation of program goals and activities personalize the communication of information and is suited for small groups or select populations. PTA committees, advisory boards, and task forces are examples of groups that benefit from oral presentation formats.

Print media is best suited for delivering information that involves contemplation and study of details. Newspapers, magazines and newsletters have wider audiences and carry timely information. Brochures, posters, and calendars carry succinct messages to inform and remind audiences of key information. Handbooks are designed for narrow audiences to use as a reference.

Commercial radio conveys promotional information and communicates messages to a large audience. Talk shows, community bulletin boards, and newsworthy topics are presented through radio. Television affords high visual impact and reaches a wide audience. It has tremendous attention getting appeal through rapid changes in visual images and use of special effects. The passive audience can be effectively reached through this medium.

Cable TV offers substantial local programming and opportunities to highlight exemplary technology education activities. School cable circuits offer similar opportunities to promote program activities to a wider audience.

Electronic information networks offer new opportunities to communicate information about technology education. Numerous Internet sites with links to related information are available for public access. Technology educators are beginning to use this media to share information and debate issues concerning technology education. Electronic journals such as JITE, and JTE and TE bulletin boards are available for professional information gathering.

When selecting a public relations medium, the needs and appropriate communication modes for specific audiences must be considered. ITEA, for example, has developed materials tailored for specific audiences such as parents, school administrators, business and professional groups, and technology teachers. Examples of ITEA promotional materials include numerous videos and print media for parents, administrators, and for leaders in the community, government, and industry.

Public Relations and Politics

Public relations and politics are inseparable organizational activities. Political actions depend on effective information dissemination and well-planned communication strategies. Goodwin (1994) referred to political action in a professional association as a statement of its commitment to take control and plan for its own destiny. Public relations strategies involve political actions that include identifying key contacts, establishing linkages with key constituencies, and positioning for visibility and prominence. Identifying and engaging highly visible and influential contacts such as corporate executives, government officials, and prominent organizations is a key initiative in moving a technology education program or association to a more visible and publicly credible position. Establishing linkages with key publics involves *boundary spanning* or, linking an organization with important constituencies and the external environment (Wilcox, Ault, & Agee,

1989; Hoy and Miskel, 1996). *Positioning* involves getting others to hear what you have to say and then having them support your ideas or cause (Ritz, 1996). Making key contacts, engaging in boundary spanning, and positioning technology education for visibility, credibility, and prominence are key public relations for political action.

For the technology educator, public relations and political actions are essential to the survival and health of programs and the profession. Technology educators need to be able to articulate program mission and goals to key publics in order to garner political support, recruit students, gain funding, and engender professional credibility. Promoting the technology education program, whether in a university, a local education agency or central administration, a high school or elementary classroom, or professional association, enhances program visibility and establishes the program. Further, program promotion reduces misconceptions about technology education mission and goals, and helps position the program in the larger organization.

One highly successful example of the use of public relations in political action, was the political efforts of the New York State Technology Education Association (NYSTEA). NYSTEA established a political action committee to develop a support base, promote technology education to key stakeholders, and effect change through legislative and political action. The NYSTEA hired a public affairs consultant (i.e., lobbyist) to identify and communicate with key contacts such as the state legislature, governor's office, state education department, and various associations and business councils. In addition, the NYSTEA established a political agenda, to include such activities as (a) providing testimony at legislative hearings on technology education, (b) creating a legislative taskforce, holding a technology education summit meeting, (c) creating an advisory council, (d) preparing promotional literature and public relations events, and (e) conducting a letter writing campaign to the state governor. Further, this state organization joined the Triangle Coalition for Science and Technology Education, a national coalition representing math, science and technology education issues and reforms with members from business and industry, science

and engineering, and education (Goodwin, 1994). The NYSTEA political activities highlight effective strategies for developing a political support base and for positioning technology education in the political arena.

Identification of Friends of Technology Education

One important political strategy used by NYSTEA, ITEA, and other organizations, is to identify potential supporters of technology education and to enlist their expertise in managing resources, identifying emerging technological developments, engage in lobbying on behalf of technology education, and in lending credibility to program decisions. The ITEA Governmental Relations Committee identified various groups that may share our public concern:

- Chamber of Commerce and civic groups
- Trade associations
- Business and industry
- Professional societies
- Technologically oriented laboratories
- Educational administrators
- Supervisors and teachers representing science and mathematics
- Museums and cultural centers
- Representatives of media
- Retired professionals (ITEA, 1994)

Examples of such efforts aimed at obtaining the support of these groups include the establishment of advisory councils, business-education partnerships, commissions, and coalitions. Such groups can expand the sphere of influence for technology educators and increase networking opportunities. The ITEA published *The Source* (1995), a compilation of contact information and

national resources, including key contacts, internet sites, trade and professional organizations, museum partners, and other technology education partners, to help identify potential contacts.

Keeping Lines of Communication Open

Political activity involves the use of various strategies to communicate information. Hoy and Miskel (1996) identify networking, information management, and impression management as key strategies in organizational politics in education. *Networking,* "the process of forming relationships with influential people" (Hoy & Miskel, 1996, p. 192) involves maintaining relationships with those who have access to information. In technology education, networking with professionals in other fields and disciplines provides information concerning issues, trends, and developments potentially impacting technology education. *Information management* involves timely release of information for greatest impact. Information management builds the reputation of an organization and enhances the position of an organization. In education, the release of educational statistics, student performance data, and new initiatives are subject to careful information management.

Impression management involves the development of a favorable public image to garner support and endorsement. Highlighting accomplishments, establishing a sense of importance for the organization, and providing physical evidence of importance in surroundings are examples of the use of impression management. For technology education, the "high tech" image is often used in lieu of "shop" environments to convey a positive impression.

Electronic information networks have yielded a new era in public relations and political action. Such networks provide an international audience, an immeasurable number of publics, and an open forum for ideas and communication of information. Electronic information networks present challenges for attention-getting capability, high visual impact, and for establishing invaluable linkages with home pages of key partners of technology education. For the publics of the twenty-first century, electronic information networks may be the primary source of information concerning technology education.

Summary

This chapter examined the importance of public relations in technology education programs and described various strategies for developing public relations efforts at the national, state, and local levels. Discussion regarding key publics and target audiences as well as preparation of public relations materials was also presented.

Regardless of the role the technology educator plays, public relations and politics are important professional activities. The technology educator of today and in the future must balance these activities in the interests of program vitality and quality. In the interest of students and key publics, the technology educator must maintain networks, engage in outreach activities, foster program support, and manage information. Clearly communicating the benefits and opportunities of our field assures our existence, visibility, and continued growth.

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Chapter 8 Identifying and Solving Professional Problems

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The purpose of this chapter is to provide an overview and specific procedures that members of the technology profession might follow as they identify and approach the solving of professional problems. Specifically, this chapter will provide practical examples as case studies of successful projects that should serve to illustrate the principles and procedures discussed in this chapter. This chapter will introduce resources, models, and terminology associated with professional decision making and identify the larger context within which our decision making and problem solving reside.

Problem Solving and Decision Making

There is a growing literature base on problem-solving and decision-making models related to education generally, and technology education specifically. The problem-solving process has been modeled in different ways for different applications. Over the past ten years, attention to problem solving as a teaching and learning approach has found its way into the technology education curriculum. Likewise, Total Quality Management (TQM) is a problem-solving process that has emerged in the business and industrial world. What these models have in common is that they represent a rational, human process through which a wide range of concerns can be considered in search for appropriate solutions to professional problems.

Concepts of Decision Making and Problem Solving

A full treatment of the many concepts that relate to decision-making and problem-solving is not possible within the limits of this document. Instead we will pursue a few, potentially powerful and

relevant concepts. Specifically, we will focus on four concepts that emerged in both business and education in the late 1980s and four elements of leadership from the early 1990s.

The first set of concepts includes (1) vision, (2) culture, (3) reflection, and (4) transformation. These concepts will be illustrated in Case Study #1: *A Technology Graduation Requirement For All Students* that follows later in the chapter. The second set of concepts is actually described as elements of successful leadership that will be presented in the following section of the same name. The elements include (1) empowering self and others, (2) transcending superficial understanding, (3) applying knowledge to practical problems, and (4) making the future better than the present.

Vision: Although the research on vision has focused primarily on principals as leaders, the concepts are still relevant here for technology professionals. Effective principals/leaders could "see" what their schools could and should be, and they are able to articulate this to their constituencies (Boyer, 1985). The central importance of vision as a quality of leadership also received extensive attention in business management publications. This would suggest that to be an effective leader and decision maker, technology professionals would need to develop an ability to develop and share a vision of proposed programs and/or projects. Lacking vision and the ability to have others see that vision will limit the decision-making and problem-solving effectiveness of these professionals.

Culture: Related to vision was the concept of "organizational culture," which in education was associated with organizational effectiveness. The concept of culture calls attention to the symbolic and social reality of schools instead of their bureaucratic or technical aspects. This means that effective leaders give as much or more time to the school culture they wish to create, as they do to the day-by-day management of the school, or the dealing with "administrivia." Culture, generally refers to shared understanding and expectations that give meaning to human action. The culture of a school, therefore, should provide the shared understanding and expectations of what schooling, at least in that school, is to accomplish so that teachers, learners, and others can contribute to the overall effort in productive and meaningful ways.

Reflection: A third concept that significantly influenced thinking about leadership during the 1980s was that of the "reflective practitioner." Schoen (1983, 1987) noted that problems of professional practice do not usually present themselves as simple well-formed issues with obvious solutions. He observed that professionals make sense of a puzzling problem through a process referred to as a "reflective conversation with the situation" (1983, p. 5).

Schoen suggested that values, attitudes, and prior understandings provide a sense of direction, goals, purposes, and standards for successful practitioners as they test tentative solutions that inform them about the nature of the problems they are facing. Professionals then adjust their subsequent actions accordingly, based on the new information (Schoen 1983, 1987). This process was described as "reflection-in-action." This process guides the individual behavior and contributes to improvement of the overall system.

Transformation: One of the most influential individuals in advancing the concept of "transformational leadership" was James MacGregor Burns (1978). Burns proposed that with transforming leadership, the purposes of leaders and group members become closely honed as they pursued mutual goals that were related to higher levels of need and moral value. Educational professionals saw Burn's conception of leadership as grounded in values and morality, which made it particularly well suited for understanding the dynamics of leadership in education (Pajak, 1993).

Successful Leadership

As indicated earlier, the second set of guiding concepts are represented as elements of successful leadership. These elements echo the four concepts just presented and include: empowering self and others, transcending superficial understanding, applying knowledge to practical problems, and making the future better than the present. All of these reside within a larger perspective of the "leader as teacher" and creating institutions that are "learning organizations." (Pajak, 1993, p. 173)

Empowering Self and Others: Over the past several years, the concept of empowerment has been much used, and in some cases, overused in educational discourse. Empowerment is an important part of what individuals go through to become involved and productive professionals. Empowerment is a useful and powerful term that portrays a process where individuals gain knowledge, skills, and attitudes that lead to a confidence of making decisions and taking actions that affects themselves and others. Several approaches to empowerment can be found in the use of mentors and internships, and in the development of team-building and collaborative skills—approaches that are in common use in business and industry as well as education.

Transcending Superficial Understanding: Most of us in education have been prepared to break problems down into very small pieces to make the problems more manageable. In this approach the smaller problems may get solved while the larger and more pressing problems get worse (Najak, 1993). It is possible to draw upon insights gained through using large systems approaches to problems coupled with narrative understanding approaches (Bruner, 1986) to help identify the "big picture" and understand how the elements composing the whole are related.

Using a holistic and integrated perspective is necessary to determine and address the underlying systemic causes of problems. The most obvious solutions to problems are often temporarily effective because only the symptoms of the problems get treated. A much-quoted anonymous statement is appropriate here. "For every difficult and trying problem there is a simple and direct answer—that is wrong."

Levels of Decision Making

In providing a context for professional problem solving, one needs to understand the hierarchical nature of decision making within institutions. Most agree that decision making is done at the normative, strategic, and tactical levels. To be an effective problem solver, one needs to, whenever possible, influence policy setting at the highest level. Although we introduce the concept of normative decisions, and we accept the overriding importance of such deci-

sions, our attention is directed toward the strategic and tactical levels. Within tactical concerns we plan to provide instances of more "nitty-gritty" problem solving and decision making.

Normative planning and decision making determines or reveals what ought to be done. Normative decisions determine whether consequences are ultimately "good" or "bad" for the object of planning. It is value- and ideal-oriented. Most of the decisions we make and the solutions we seek in education are normative in nature. The normative decisions, such as setting goals and purposes for programs and projects, shape the strategic and tactical decisions of both a technical and administrative nature that are required in implementing or achieving the goals and objectives that have been set. It is important to note that national efforts such as the studies that call for new educational standards, including those that petition for the inclusion of technology education in the standards, are normative in nature. It is difficult for the practicing professional to make direct change at this level. However, every professional should be involved through professional associations where influencing normative decisions is more likely to occur.

Strategic planning determines what can be done in a time framework and with normative direction. Strategic planning is most often implemented at the institutional level. These decisions translate general policy into specific purposeful activity that is oriented to the achievement of articulated objectives. The many administrative decisions that implement established policies are strategic in nature.

Tactical planning and problem solving are found most often at the programmatic level. Problem solving at this level usually implements solutions to problems that have been formulated at a higher level. Many of the key decisions made by department heads and program leaders are tactical.

Strategic Problems

Power and Politics: Colleagues, who are relatively young in the profession, may not consider the development of a new course as involving "power and politics." In some instances this may be so, but when the course represents an additional requirement for grad-

uation of all undergraduates, it is placed "stage center" in the drama of power and politics. To use a different analogy from marketing, politics and power make it possible to position technology education so that it is more marketable. With positioning comes power.

Case Study #1: *A Technology Graduation Requirement for All Students*

Identifying Problem and Opportunity: The study of technology is necessary for all students to understand the human quest for solutions to technological problems and the impacts of those solutions on individuals, society and the environment. Understanding the nature of technology is essential to meeting our national social and economic goals. (TfAA, 1996; Project 2061, 1993; TEANJ, 1996). Unfortunately, most school curricula do not meet a minimal level of technological literacy. This failure creates a negative student bias against the importance of technology in our lives. To address this serious social problem, appropriate curriculum must be developed in technology studies and a new paradigm for schools must be instituted.

Design Brief: To address this problem, create an environment where a new graduation requirement in technology studies is supported. When supportive conditions are established, design an appropriate technology studies course to fulfill that graduation requirement.

Background

In 1985 the College of New Jersey (formerly known as Trenton State College) completed its Middle States Accreditation review. While the college passed the accreditation, a reviewer noted that the general education program was weak. As with most general education programs of the 1970s and 80s, students were permitted to pick classes from a list of approved courses. This process usually resulted in an accumulation of credits with little coherence or underlying academic value.

The Opportunity: In 1986 the college established a *General Education Advisory Council (GEAC)* to investigate the reported weakness. The department of technological studies, having a histo-

ry of being active in campus governance, submitted the name of Dr. Stanford Ruggles, Professor of Technological Studies to serve on the committee. Over the next few years, Dr. Ruggles worked to persuade the committee that an understanding of technology was essential for a person to be considered liberally educated. Dr. Ruggles efforts were recognized in Goal #9 when thirteen goals for the new general education program were announced on campus. These goals for the new general education program were:

1. To develop the ability to read and listen carefully, and to write and speak clearly and effectively in standard English.
2. To develop quantitative skills and an understanding of important concepts and methods of mathematics.
3. To develop the ability to collect, analyze, and interpret information and to communicate the results to others.
4. To develop critical reasoning skills, in the use of analogy, deduction and induction.
5. To develop the ability to solve widely varied problems.
6. To develop the ability to make informed judgments concerning ethical values.
7. To develop an understanding of concepts and methods in the social sciences.
8. To develop an understanding of important concepts and methods of the sciences.
9. *To develop an understanding of the nature and role of technology and impact on the environment and society through the study of the development and application of tools machines, and knowledge for the achievement of practical purposes.*
10. To develop an understanding of the aesthetic and intellectual experience in literature and the arts.
11. To develop historical consciousness through an understanding of the history of world civilizations, the beliefs and ideals of world cultures, and the evolution of global civilization.

12. To develop an understanding of diverse cultures.
13. To develop the ability to comprehend, speak, read and write a language other than English. (Liberal Arts Majors)

The new general education program was structured around three clusters: (1) Intellectual Skills (Rhetoric I/II and two mathematics courses), (2) Interdisciplinary Core on Understanding Humanity (*Athens to New York* and *Society, Ethics, and Technology*), and (3) Perspectives on the World (two laboratory based natural sciences courses, a process and content social science course, and four courses in humanistic or artistic perspective). Students in liberal arts were required to demonstrate a language competency.

GEAC in developing this list of goals and outcomes for general education recognized, for the first time, the profound role science and technology has played in shaping human society. In addition, the study of technology was expected to provide students with a method for evaluating the social benefits and risks associated with technological change. In supporting technological literacy as an essential component of what it means to be an educated person in the late 20th century, the committee understood that technology would continue to be a central theme in the lives of all future graduates as well. To meet goal nine, it was determined that a new course was needed and that it would be part of an interdisciplinary core offered during the sophomore year to all students.

After the nature and goals of the course were determined by GEAC, faculty members were identified to begin the task of developing the interdisciplinary course. Dr. John Karsnitz, Professor and Chairperson of Technological Studies represented the department. Other Professors from the Departments of Philosophy and Religion, Biology, Sociology, and Anthropology collaborated in developing the new *Society, Ethics and Technology* course. What became quickly evident was that faculty from traditional liberal arts areas recognized the importance of technology but had given little thought to the character or structure of its study. Because of previous leadership endeavors on campus, the Department of Technological Studies was able to greatly influence the content for the new course. The new course was organized around six major

units: The new course was organized around six major units: (1) Technology as a System, (2) Technology as a Creative Process, (3) Technology as a Social Process, (4) Technology and Ethics, (5) Technology and the Environment, and (6) Technology and the Future. In 1994, the *Society, Ethics and Technology* course was fully implemented.

In the fully implemented course, each unit addressed many major learning goals and outcomes. For example, the unit on technology as a creative process attempts to give students an understanding of the technological design/problem-solving process as a method of rational inquiry. This is accomplished by involving students in a hands-on activity where they design a solution to an identified problem. Similarly, the unit on ethical and moral decision making involves students in small group discussions in which they will apply a structured procedure for moral analysis and decision making to actual medical case studies. At the center of these medical case studies are ethical concerns through the use of technological developments.

Each week, students attend one 80-minute lecture and one 80-minute seminar session. Some lectures are massed. Lectures and course readings introduce and provide background for topics in each unit. Faculty from various disciplines present the lectures. The departments of Technological Studies and Philosophy and Religion share course coordination. In the discussion seminar sections, faculty members engage the students in in-depth discussions of the reading material and the lectures as well as various activities to reinforce these topics. Additional enrichment sessions are scheduled which feature on-campus or outside speakers and several appropriate films. Faculty members who are working with the course meet regularly to discuss and develop seminar activities, the mid-term exam, final exam, and evaluation. A course reader *Society, Ethics and Technology* was originally developed by the faculty and edited by John Karsnitz (Technological Studies), Morton Winston (Philosophy and Religion) and Charles Goldberg (Computer Science).

The development and implementation of this course demonstrates how the concepts of power and politics can play an important part in establishing technology as an area of study for all stu-

dents. It is important to note, however, that this political leverage did not come as a gift, but it was won through years of contribution of the technology faculty to many other campus-wide efforts.

Creating a Mission from a Vision

As noted earlier in the chapter Voyer (1985) and Pajak (1993) noted that vision was seen as an essential component of success of education leaders. Although this work focused on school principals, the findings and insights gained are applicable to our concerns here. Successful leaders in technology must be able to create a vision of what their programs could and should be. This appears to be a rather simple and straightforward statement, but our profession has often been slow to identify important harbingers of change and to integrate them into a professional vision and mission. As noted by Bensen (1996):

> We are reaching a crisis in the profession. The crisis is one of understanding of what we are all about, a crisis of identity, and hence, an obvious resulting crisis of support. While many secondary programs are struggling and are in danger of being closed, other programs that are "flying high" and expanding cannot find enough qualified teachers. All this is unraveling at a time that our subject matter, "technology," is soaring throughout the world as one of the "hot topics" in our vocabulary, our work, and our lives. The opportunities for expansion of technology-based programs are unlimited in K-12 education and the potential for our field to explode on the scene has never been better. Yet, too many teacher education programs in technology-based program "trudge" towards tomorrow as a profession walking in quicksand looking at where our next step will be placed rather than focusing on the horizon and catching the excitement that other sectors in technology are enjoying. (p. 1)

Bensen's (1996) criticism of our lack of political vision is well worth attending to, especially if we are to see our profession prosper in this time of growth. Several of his recommendations are included below, in which he proposes that we:

> ***Drop the adjectives.*** When we use terms, such as "industrial" as a modifier of technology, we limit our arena of endeavor. Consequently ... the rest of the field of technology will someday have to be taken up by other areas of the curriculum.
>
> ***Drop the term "education."*** When we look at subjects in our secondary school curricula we find that those with the term "education" attached to them are usually elective and of a lower order of importance. Required subjects, such as mathematics, science, English, and the like do not include education in their titles—neither should technology.
>
> ***Identify with engineering.*** The most influential sector of practicing professionals in technology are engineers. ... Technology programs need to embrace the engineering profession in our curriculum and utilize the power that will come with it to promote our programs and gain resources to expand them.
>
> ***Integrate with other subjects.*** More and more connections are being sought in the academic enterprise that will more fully mirror the life that people live and work in. Additionally, ...where ever technology programs can be integrated into the study of other subjects we should be taking the lead in these endeavors. (p. 5)

The above are not intended to be exhaustive. They are, however, representative of some of the key problems related to vision and mission that we face at the strategic level. For a more detailed treatment of vision and mission related to technology education, see *Technology Education in the Classroom: Understanding the Designed World* (Raizen, Sellwood, Todd, & Vickers, 1995).

Program Redesign

Program redesign and the supportive efforts we know as curriculum development continue to represent some of the most persistent problems we face professionally as considered by Wicklein (1993). In this Delphi study, Wicklein identified three recurring issues that related directly to program redesign. These concerns included curriculum development, the identity of the knowledge base for technology education, and interdisciplinary approaches to the delivery of technology education.

Each of these concerns represents a range of problems for which there are uncertain solutions. Most curriculum development efforts in other school subjects are reflecting the new learning standards, as evident in the *Society, Ethics, and Technology (SET)* course described earlier. Currently, it is difficult for technology education to reflect the new standards because those standards of learning are still being developed. Through the *Technology for All Americans* (1996) project (funded by NSF/NASA), the International Technology Education Association is engaged in developing standards of learning for technology education similar to those in science and mathematics. Our curriculum development efforts will be fraught with added problems of ambiguity and uncertainty until the standards are released.

Program Assessment: As a part of program redesign, some attention must be given to the evaluation and assessment of the program modifications and the results that can be attributed to those changes. In this time of accountability, it is important that we can articulate and defend our decisions and the practices we implement that emerge from our problem-solving efforts.

By pursuing assessment, an individual is indicating a decision to determine program effectiveness by considering the outcomes of the effort. Questions of this type reflect a decision to judge program effectiveness by looking primarily at outcomes. It will be important, for example, to ask the following question: To what extent were stated program objectives attained?

Focusing solely on product will be inadequate, for other problems exist in the assessing of professional programs. What consideration will be made of the process through which the products

emerged? What were the resulting changes that emerged through the interaction of process and products? What was the process that helped participants achieve its outcomes?

Tactical Problems

Solutions to tactical problems are usually found at the program level. The second case study provides an overview of a successful program development at the department level. The opportunity for this new major arose because the department articulated a case for the need for technological studies at the elementary school level. The understanding was initially fostered by Dr. Robert Weber's, Professor of Technological Studies, effective leadership in New Jersey's Statewide Systemic Initiative project (funded by NSF to integrate mathematics, science, and technology education). The following case study is an example of tactical problem solving.

Case Study #2: *A Technology-Based Academic Major for Early Childhood and Elementary Education Majors*

Identifying Problem and Opportunity: In 1986, the New Jersey educational code was modified requiring education majors to have a "coherent academic major" as part of their baccalaureate degree program. The code required a minimum of 30 credits of discipline studies and a maximum of 20 credits of professional studies. It was expected that the new requirement would improve rigor and strengthen the academic preparation of students in teacher education programs. In the early childhood and elementary education area, most students opted for a major in psychology, sociology, English, or history. But as with all governmental regulations, there are possible negative outcomes. One unexpected outcome was the extremely high number of elementary students selecting social science majors. Clearly, few would view it educationally sound to have an imbalance between social and physical (including technology) science trained teachers in the school. While a subtle social science bias has clearly existed for many years in the elementary school, the new regulations exacerbated the problem.

Currently at The College of New Jersey only 115 of the 977 elementary and early childhood education students are majoring in science (2.3%) or mathematics (9.4%) or technology (0.0%).

The low representation of mathematics, science, and technology discipline expertise is of great concern and is one of the major reasons for the national call for math, science, and technology (M/S/T) integrated studies. Given this broad concern, the demand for elementary and early childhood education M/S/T majors is projected to be high. This projection is supported in the New Jersey Statewide Systemic Initiatives call for proposals for M/S/T program development.

National studies have shown that by the time children reach middle school, they are well behind children from other developed nations in math, science, and especially technology studies. This is especially harmful to young female students. The study of technology is necessary for all students to understand the real-world human quest for solutions to technological problems and the impacts of those solutions on individuals, society, and the environment (TfAA, 1996; Project 2061, 1993). To fix the problem, a new cadre of teachers trained in integrated M/S/T studies is needed. Unfortunately, no M/S/T major currently existed in the state.

Design Brief: To address this serious social problem, develop a new integrated mathematics, science, and technology studies major appropriate for early childhood and elementary education majors.

Background on Integrating M/S/T Studies

Since the early 1980s, many in the science community have suggested that a new paradigm consisting of mathematics, science, and technology is necessary to meet the challenges of the 21st century. No less than five prominent national groups have identified mathematics, science, and technology as essential elements of this new liberal arts education (Sloan Foundation, NASTS, Project 2061, ITEA, and NSF). At the state level, The College of New Jersey faculty from the Departments of Mathematics and Statistics, Biology, and Technological Studies has been involved as Thrust I Site leaders for the *New Jersey Statewide Systemic Initiative* (NJSSI, Dr. Robert Weber, TCNJ/SSI Project Director, Department of Technological Studies). Within our institution, mathematics, science, and techno-

logical literacy have been recognized as three of the thirteen outcome goals of the new general education program. The proposed new integrated major in Math/Science/Technology will support the national movement for a new paradigm in education.

The integrated study of mathematics, science, and technology is gaining both popularity and educational significance. In recent years, national studies have concluded that students need to develop an understanding of technology in addition to mathematics and science as part of their basic literacy. The Sloan Foundation in 1983 began supporting work in a new paradigm for higher education. The support was intended to encourage teaching of technology and quantitative thinking by making awards to colleges and universities.

In 1988 the National Association of Science, Technology, and Society (NASTS) was formed. This association set as its primary goal to provide a forum where members of various sectors—K-12 educators, post-secondary educators, policy makers, scientists and engineers, public interest activists, museum and science center staff, religious professionals, members of the print and broadcast media, and participants from the international community—could gather and take a proactive stance to guide future directions in science and technology.

In addition to its support of mathematics and science, it is most noteworthy to reiterate the National Science Foundation's recognition of the importance of the study of technology through funding a number of grants to develop and test curriculum and instructional materials that focus on technology education. While technology is often viewed as a vehicle to excite and motivate students by investigating the scientific and mathematical principles applied within certain technologies, school practice largely remains focused on the acquisition of factual information.

In 1993, the American Association for the Advancement of Science (AAAS) under the auspices of its funded grant "Project 2061," published the *Benchmarks for Scientific Literacy.* Recognized as a watershed for school reform, Benchmarks sets standards for scientific literacy for all Americans. Most interesting is

the fact that, in the view of AAAS, scientific literacy consists of integrating the study of mathematics, science, and technology. The Benchmark document was intended to influence state reform movements, and it has been used for that purpose. In May 1996, the Board of Education for the State of New Jersey approved new "Standards" which drew heavily on the "Benchmark" document. As we consider this new major, the New Jersey Department of Education is developing "Framework" documents that illustrate an integration of mathematics, science, and technology, especially at the elementary level. It appears that the most appropriate approach for systemic change is to integrate mathematics, science, and technology as both process and content.

Program Development

Representatives for each of the participating departments developed the new program. Faculty members representing their respective departments were Robert Cunningham, Mathematics and Statistics; Philip Dumas, Chemistry; Raymond Fangboner, Biology; Paul Hiack, Physics; and John Karsnitz, Technological Studies. In addition Sharon Sherman, Elementary/Early Childhood Education, and Robert Weber (Technological Studies) provided their expertise. Dr. Karsnitz coordinated the group effort. After considering program alternatives, it was decided that a broad core with a discipline specialization would best serve the goals of an integrated major. Since most disciplines involved had an approved minor (21 credit program), it was determined that a specialization meeting the minor requirements was most appropriate. It is important to note that the Department of Education through NJSSI has published an RFP for pre-service initiatives for prospective K-8 teacher training:

> (For) institution of higher education, please describe how you will begin or expand plans to effect standards-based systemic reform of undergraduate science, mathematics and technology education in such a way that prospective K-

> 8 teachers enrolled in pre-service programs at the institution will be directly affected. (NJSSI, RFP, August 1996, p. 8).

The program proposal was presented to TEAC and was approved on February 5, 1997. Dr. Gerald A. Goldin, Director, Center for Science, Mathematics and Computer Education at Rutgers University served as the external reviewer.

Given the national and international focus on the M/S/T paradigm, the citizens of New Jersey would be well served by this new major. Graduates from the program would be prepared to take leadership in shaping curriculum around the critically needed M/S/T paradigm. The new major has been developed utilizing existing faculty and courses from the Departments of Biology, Chemistry, Mathematics and Statistics, Physics, and Technological Studies. Each department supports the College commitment to program and faculty excellence, and the M/S/T major is reflective of the institutional effort to provide flexibility and expanded opportunities for intellectual pursuits while increasing department productivity. The major also will provide an opportunity for an integrated area of study.

In the program, students electing the Math/Science/Technology major (ELST for Elementary Education students and ECST for Early Childhood Education students) will be required to complete between 125-127 credits for graduation and teacher certification. The new M/S/T major will meet all general education requirements for teacher certification. Students selecting this major will complete the 44 credit minimum requirement for general education, 10-11 credits of additional general education and social/behavioral science courses, and an additional 16 credits of approved general education science courses. In total, M/S/T majors will have completed about 71 credits of approved general education studies. This is well above the required 60 credits minimum required in state regulations and reflects both the rigor expected and the desire to integrate technology as the new liberal art. This major is illustrated on page 156:

M/S/T PROGRAM REQUIREMENTS

GENERAL EDUCATION REQUIREMENTS: 44CR.

Intellectual Skills: 12cr. Rhetoric I/II (6cr.), Mathematics M/S/T Core (6cr.)

Interdisciplinary Core: 6cr. *Athens to New York* (3cr.), *Society, Ethics, and Technology* (3cr.)

Perspectives on the World: 26cr. Science from M/S/T Core (8cr.), Social Science (6cr.), Humanistic and Artistic Perspectives (12cr.)

Additional General Education: 11cr. Computer Literacy (3cr.), Creative Design (3cr.), Child Growth and Learning (5cr.)

M/S/T MAJOR REQUIREMENTS 35-37 CR.

Core: 28cr. Calculus I/II, Statistics (6cr.), Biology (8cr.), Chemistry (8cr.), Physics (8cr.), and Technology: (6cr.) *Introduction to Human Technological Behavior* (3cr.) *Principles of Structures & Mechanisms* (3cr.) Technological Literacy (3cr.) M/S/T Elective (3 cr.)

Specialization: 14-15cr. Completion of a minor in one of the core disciplines (Technology minor includes: Energy Systems, Technological Design I, and three technological electives)

PROFESSIONAL EDUCATION REQUIREMENT: 30CR.

Included in this requirement is the course *Technology in the Elementary School*

A Model for Implementing Educational Solutions

The complexity of educational decision making is made evident when we consider the array of decisions to be made, the number of people that are involved across several organizational levels of the educational enterprise, the range of values about and expectations for educational programs, and the conflicting claims for what should be priority concerns of educational programs as seen in the two case studies. For example, in curriculum decision-making, the sources of justifications about which students should have access to what content, materials and experiences, run the gamut from forecasts about the future to economic constraints. How do we sort the significant from the trivial, the myth from reality, and the attainable from the dream? How do we allocate a limited amount of time, money, people, and energies to make decisions that ultimately form a worthwhile and feasible educational endeavor is the conundrum we face regularly in our decision making.

Communication between people who hold different roles and perform different educational planning tasks is facilitated when everyone has a common vantage point on the process and a set of common terms that will be used in the decision-making process. Several studies have underscored the diversity of usage and meanings of such educational terms as purposes, design, values, data, process, curriculum, objectives, content, and evaluation. Universal usage and meanings of such terms cannot be assumed, rather the meanings need to be made quite clear if a coherent educational program is to be developed. This requires technology education professionals to:

- Provide various decision makers common curriculum terms.
- Provide a single, comprehensive, conceptual framework or model for the design, development, implementation, evaluation and revision of the decision-making process.
- Provide clarification of the key decision-making arenas (e.g. program design, short- and long-term planning, curriculum and evaluation design and development decisions) and provide a set of procedures for making them.

- Identify some universal criteria to be used for educational design, planning, development, implementation, evaluation, and revision decision making.
- Identify who should be involved in what ways in making which curriculum decisions.
- Provide a management system for organizing and supervising the various decision-making areas.

Basic Decision-Making Elements

Values: Clearly, the most pervasive element of all educational discourse and activity is our educational values. Expressed as beliefs and assumptions about how human beings develop and seek meaning, the purpose and qualities of society, and the nature of truth and knowledge, our educational values provide the basis for selecting, organizing and justifying most if not all other decision-making elements. The very essence of educational decision making/problem solving is to choose what will and will not be of educational value for a person, a group of people, indeed an entire society. While educational research may help us look at the possible consequences of certain choices and of refuting or confirming various educational claims, it cannot tell us what should or should not be of educational worth. Essentially, our educational values provide such justification.

A necessary corollary of grounding educational decisions and problem solutions in our values is that conflicting educational values may exist within most communities and societies, indeed across most advisory groups and faculty members. Diversity and conflict between people can be viewed as a healthy condition if open dialogue and deliberation are permitted.

Data: While our values provide a basis for making choices, research finding, needs assessment results, and our own experiences yield information that allows us to make decisions and anticipate consequences. Data about organizational development, group engagement, and individual learning, helps us design and plan programs and initiatives of change.

Designing, developing, and modifying programs and projects represent similar decision-making and problems solving tasks done by different people or organizational units at different times. Designing a system for planning precedes development while revision follows evaluation.

A *design* for educational decision making fulfills the following:

A Design sets forth a rationale for setting a specific direction or developing a particular program or project. It presents the assumptions about societal and organizational need, a definition of what the initiatives are to be pursued, identifies the overall purposes of the initiative to be developed, and identifies the data sources to be used in the decisions to be made.

A design identifies and justifies the criteria to be used for making design, planning, development, implementation, evaluation, and revision decisions. For example, the design statement would make clear that the decision makers are to consider goals, strategies, and activities that are non-sexist and non-racist. Similarly, the decision makers could be expected to attend to contemporary and forecasted future technological realities and developments.

A design provides an overall structure of the educational initiative to be implemented. A graphic representation of this structure and related descriptions can help provide a vision of what the proposed or anticipated initiative will be. This visual, with supportive descriptions of elements and procedures, will help make evident the goals to be achieved, the major decision-making processes that will be used, the strategies to be implemented, the resources needed or that will be allocated, and the means for assessing the progress being made to meet the initiative. In essence, this aspect of the decision-making design offers an overview of the initiative to be developed; similar to an architect's rendering of a house or office building to be built.

A design identifies the nature of the educational decisions to be made, in terms of both format and style. Who is to be involved in making which decisions and what decision-making

procedures are to be used? For example, there are several ways to state purposes, strategies, or evaluation procedures. The design statement should make clear what format and style is desired. Some formats call for a parallel structure with a column of objectives, a column of concept, one for activities, etc., while others use an outline approach. Some styles require a particular way to write objectives (e.g., using taxonomic language, specifying the behavior, content, criterion, etc.). If a particular style, format and sequence of curriculum elements is desired, the design should make this clear.

A design is an attempt to make clear the recommended decision-making procedures. The value-based nature of educational decisions coupled with the plurality of beliefs and priorities across and between people necessarily leads to differences and conflicts about what the educational initiative should be, how selected initiatives might be pursued, and what resources will be allocated to implement the initiatives. Finally, there is always the continuing concern of who should make these decisions.

Levels of Decision Making

Finally, in the implementing of decision-making procedures, it will be helpful to envision this process as having several different degrees of involvement and responsibility. Four categories seem to capture the basic levels of involvement: advisory, deliberation, deciding/recommending, and approval.

Advisory is defined as providing information for reactions or decisions. Perhaps the areas of greatest advisory activity are the overall goal statements and reactions to the total design and final draft of the curriculum.

Deliberation is the process of seeking data and options, weighing the options and setting priorities of the most desirable options.

Deciding/Recommending refers to the review of the options suggested and selecting which are to be selected for action or implementation.

Approval refers to the ultimate acceptance or rejection of the recommended decisions.

The above involvement may be confined to a single person, a committee, or distributed across several roles, levels, and groups. For example, educational advisory committees may provide suggestions about what the purposes, activities and basic outcomes of a program or initiative might be. The directors may set forth recommendations for the overall structure and purposes of the decision-making design. Supervisors, technicians and teachers may deliberate about the objectives, specific activities, and resources, and the program or project personnel may decide which options will be included and make recommendations accordingly to the directors or managers of the proposed initiatives.

Summary

Undergirding the thoughts presented in this chapter is the perspective that educational problem solving is one of the essential processes for survival of programs of technology. For programs to flourish, planned change is mandatory, and planned change places high value on decision making, articulated values, usable data, and considered possibilities and consequences.

Because of the centrality of politics to the problem solving and decision making, we have referenced selected concerns that can impact on the health and development of a technology program. We identified three levels of decision making and proble -solving to include normative (political), strategic (institutional), and tactical (programmatic). We suggested that, as much as possible, all problem solving should by influenced by higher level decisions. Operational problem solving should be influenced by tactical decisions, and tactical-level problems should be influenced by strategic-

level decisions. Similarly, strategic problem solving should be approached with an awareness of how it is influenced by politics and power.

In closing, we believe it is essential to note that most educational decision making that influences and directs problem solving is normative, and consequently political in nature. We must be aware, therefore, of the role that beliefs and values play both in interpreting what might be the nature of a problem, what solutions will be seen as "good" or "bad," who will be engaged in the problem-solving process, and finally, what form the final solution will take and who will benefit from those solutions. These final notes set the stage for future discussion as we continue to gain new knowledge and skills in the identifying and solving of professional problems.

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Professionalism at Various Educational Levels

Chapter 9

Teacher Professionalism in Primary and Secondary Education

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and

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As professionals in Technology Education, there is no more opportunistic time, nor influential challenge, to advance the values and the technological literacy needs of citizenry than in the primary and secondary levels of education. Promoting these values and knowledge with students and parents in local communities is a large, encompassing, and often daunting task. This chapter illustrates the varied aspects of professionalism for the schoolteacher and how technology education teachers must be "generalists" (McLaughlin & Oberman, 1996, p 42). They must be a manager, marketer, salesman, trainer, facilitator, motivator, mentor, visionary, role model, lifelong learner, curriculum developer, and organizational leader; all within the constraints of a 190 day school year and all while being a technological "expert" and resource person.

The goals of this chapter are to outline the professional duties and responsibilities of the classroom teacher. To be effective, teachers must be able to traverse readily between the classroom, the faculty lounge, and local community. There are shared objectives in each of these venues. The professional must effect a trust with each of these constituencies and promote a vision of personal, educational and technological ethics, and values. They must also be able to maintain communication links and support networks with administration, parents, businesses, and other decision-making groups. Finally, classroom educators need to be continuing learners, academic integration leaders, and educational change agents.

Profiles of Professionalism in Teachers

So what defines professionalism in the primary and secondary technology education milieu? In many cases, primary and secondary teachers do not even have the opportunity of holding the distinction of being "professionals" (Kremer-Hayon, 1993). Professionalism requires networking with inside and outside school constituencies. Effective teachers build a rapport with students, staff, and community that allows for a growing, thriving technology education program. This entails the following:

- Managing the classroom
- Creating or establishing a trust and shared vision of the need for technology education with students and community
- Communicating commitment to students and administration
- Developing values, goals, and ethics in students
- Facilitating change

Management

Managing the classroom encompasses the necessities of running an effective program. Developing and managing a budget, creating a meaningful curriculum, and assembling resources—including people as well as equipment. Effective teachers often are the ones that can do more with less. They talk to people, arrange partnerships, and create relationships that are ongoing. These teachers combine community and subject matter to give students a better understanding of how technological ideas relate to their social order.

Management of the educational setting requires organization yet flexibility. A teacher must carefully plan the environment and strategies for effective learning. They shouldn't be so organized that the surprise monthly fire drill shatters all chances of a productive day.

Technology education teachers must also strive to make their classroom/curriculum a part of the community. This means being prepared to work with others to produce a school product for the

greater good. For example, at one school, a neighboring agriculture teacher was developing a fish spawning project, but didn't have enough students or resources within the budget. By unifying students and resources with the technology exploration class, the project was successfully completed and both agriculture and technology students benefited from the experience. This author found that while teaching power concepts, it was appropriate to bring in alternative concepts of fish migration and problems that need to be addressed during dam construction.

Trust

Teachers must establish a trust with students and the community that demonstrate moral, ethical, and social responsibility. Students are quick to pick up on double standards. Teaching technological and social ethics must include living and enforcing positive behavior in the classroom while questioning reckless and irresponsible behavior. If a teacher were trying to instill an appreciation of recycling (and the social responsibility of maintaining the environment) in students, yet neglected to participate themselves, a lack of trust and respect could develop towards that teacher.

An extension of this developing trust is to develop and maintain a positive shared vision of the need for technology education. Teachers need to believe in their program and communicate this commitment to their students, the administration, and to the community. Working together with these groups, a teacher can develop a strong program that illustrates the importance of technological literacy.

Commitment

One way in which the commitment is being developed and stressed with administration is with the document entitled: *Technology for All Americans: A Rationale and Structure for the Study of Technology* (ITEA 1996). This document provides a new vision for the study of technology. It also provides the support, knowledge base, and opportunity for groups, agencies, and associations to become involved in the promotion of technology education as an essential core subject in our nation's schools.

When a teachers' feel strongly about their subject matter, they can more easily develop the same values, goals, and ethics in their students. "A child's life is like a piece of paper on which every passerby leaves a mark" (Ancient Chinese proverb). A key characteristic that describes an effective classroom teacher is "expectation." Effective teachers often set high expectations for their students, and students tend to learn as little or as much as their teachers expect. Teachers who set and communicate high expectations to their students obtain greater academic performance from these students than teachers who set low expectations (U.S. Dept. of Education, 1986, p. 7).

The willingness of a student to accept a teacher as a role model, depends on "different teaching styles, personalities, and situations" (Strike & Ternasky, 1993, p. 208). However, because teachers work with students on a daily basis and are a part of the greater community, teachers' characters are often closely monitored for moral and ethical guidance. Teachers are held to a "higher standard" by the community in general and the justice system, so they need to "not only avoid impropriety, but with equal vigor, avoid the appearances of impropriety" (Gross, 1988, p15).

Facilitating Growth and Professionalism

Technology Education Teachers often are the first to realize that the job of teaching includes continuous learning. With this knowledge, technology education teachers work hard to keep abreast of technological and educational changes on the horizon. This makes them prime candidates for leadership roles in their schools, districts, and areas for facilitating technological and educational reforms.

As mentioned earlier, the teacher has a myriad of responsibilities. The roles teachers play in the school setting can be divided into two areas: the school and community and those the teacher must assume to ensure a successful program. Schools expect teachers to be models of behavior—modeling citizenship, ethics, leadership, and deportment. Additionally, educators are expected to be models of organization and fairness, cooperation and perseverance, managing their classroom, promoting equity, and developing relevant curriculum. Teachers must take these responsibilities further by pro-

moting their programs, participating in professional development activities, promoting mentoring, and assisting in activities such as grant writing for program and school improvement.

Promoting Equity

Perhaps one of the most difficult tasks of a classroom teacher is to ensure equity in the classroom, while still providing guidance and direction for students with individual differences. Equity in the public school setting is more than sex equity. It involves physical, intellectual, and operational equity. Often a technology teacher will find a mixed classroom of talented and gifted (TAG) students with some that are on individualized education programs (IEP). There might also be physically challenged students that have the ability to function quite normally in intellectual discussions and assignments, but need a modified curriculum to successfully accomplish psychomotor tasks. Add to this the typical peer behavior of a middle school or high school student, and the teacher can use these differences to teach that differences enhance us as a society. The position taken here is that anyone can accomplish anything they are willing to work at. The authors are reminded of a school goal selected by the staff at East Aurora High School, Illinois—"All students can and will learn." The extension of this is that students will not all learn equally, but can be treated equitably.

As Trautman (1998) points out, "gender and racial inequity in employment can often be traced to inequity in education" (p. 6). Therefore, it is imperative that public school teachers strive to eliminate sexual and cultural bias in technology education curriculum. National studies show that a relatively small percentage of women and racially diverse groups enter technology fields (Lerman, 1996). There are plenty of biased views in society, and these views should not pervade the educational environment. Students need to know they have the freedom to be who or whatever they want to be in life. They will not be granted, nor denied rights simply by means of their sex, race, or cultural background. Clark and Starr (1991) stated that "your own good judgement should be sufficient to guide you in this aspect of teaching," but it is a safer bet to have another person or teacher critique your lesson plans for equality or biased views (p. 366).

Curriculum Development

Subject isolation and departmentalization have been the rule in education for many decades. In this time of increased educational reform, *all* teachers must learn to integrate their curricula with other academic disciplines (McLaughlin & Oberman, 1996). Technology education teachers should be the leaders in this movement as they already blend technical relevance with an academic framework.

It is important for technology education teachers to outline specific goals and objectives within their program. Technology education is not separate from the rest of the school environment so this process should not be done in a vacuum. Kellough and Kellough (1996) recommend teachers do the following:

- Probe, analyze, and translate your own conviction, knowledge, and skills into behaviors that foster the intellectual development of your students.
- Review school and other public documents for mandates and guidelines.
- Talk with colleagues and learn of common expectations (p. 196).

The last is especially important to begin the communication process necessary for working toward integration. As communication increases with other staff, technology education teachers can begin to develop a camaraderie and team approach to teaching students. Oregon State University, working under an Eisenhower grant in 1992, assisted eight public middle and high schools to develop integrated teams of math, science and technology education teachers (Merikel, 1995). Each of these teams were then assigned to a local business or organization to develop integrated curriculum strategies to take back to the classroom. In all the cases, teachers were surprised at how much subject matter they had in common. It gave teachers a relevance to relate back to students through sharing of experiences and classroom activities.

Public Relations

Successful technology education programs include a large component of "blowing your own horn." Teachers share activities and success stories of learning with school, staff, and community members through public relation avenues. These might include student-produced newsletters or flyers, local newspapers, radio or television stories, or an Internet web site. Nestucca High School students in Oregon found that winning second place in a state bridge engineering competition was sufficient motivation to study the famous Oregon bridge designer Conde McCollough and to crate an appropriate web site (http://www.nestucca.k12.or.us/bridge). Most newspapers publish local public interest stories and are more than willing to make a trip to take pictures and interview students for an article. These public relation events go far in promoting both students and the technology education program.

Obtaining In-Service Support

In the past, teachers had limited options for continuing their education. There are in-service opportunities created by the school district, workshops and conferences sponsored by professional organizations, internships available through businesses and graduate courses of study prepared by local colleges and universities. The major limitation on these continuing education opportunities was time and distance. Even if the teacher was lucky enough to be in a metropolitan area, it was often difficult to travel to the place of the professional development activity. Teachers, in rural areas, had a more difficult time acquiring equivalent learning opportunities due to increased travel time.

The inherent nature of technology curriculum has technology education teachers striving to keep up with the volatile subject matter. But technology itself has aided the classroom teacher in keeping up with technological change. More versatile distance learning opportunities are becoming available through videotape lectures, Internet and email offerings, teacher-to-teacher and teacher-to-business connections. This technology also has the ability to bring it to teachers in a more timely manner. The Internet has allowed professional organizations to develop more services and resources to

aid teachers (Sequin, 1994). Instead of waiting months or years for trends to advance to the classroom, changes and discussions can reach teachers literally overnight.

Any school with a satellite dish and receiver can offer state or university sponsored activities to their staff, without the necessity of travel. The World Wide Web and the Internet in general, have provided many resources for teachers. Teachers can access large databases of subject specific lesson plans, or scientific and technological information from such agencies as NASA and NOAA. Teacher support networks, email listservs, and online teacher chat rooms allow educators to converse with one another as often as they need to share experiences and information.

Vocational teachers have regularly used business internships to gain expertise in a business application of subject matter. Some states and schools are finding that internships can be of great motivation for other teachers as well. In Tillamook County, Oregon, a consortium of school districts hired a coordinator to facilitate a greater working relationship with businesses and schools. This person began getting businesses to offer paid internships to teachers from the county districts. (Armstrong, 1997). Businesses included the local electric company, a national estuary project, the forest service, an automotive repair shop, and a computer chip manufacturer. What the teachers gained from the experience was a renewed vigor for teaching their subject matter. The teacher to business match-ups were not obvious. A social studies teacher interned at the auto repair shop doing a customer service and satisfaction study. A special education teacher interned at the estuary project using desktop publishing to complete a recreational boating guide, and a technology education teacher interned with the electric company on learning geographical information systems and its use in a rural electrification environment. Each went back to their classrooms with new information and an appreciation for how many academic subjects could be integrated into their learning environment.

Mentoring Programs and Other Professional Opportunities

Outside the classroom, teachers are presented with many opportunities to extend their professional development. Mentoring other teachers, serving on school or external committees, assuming curriculum and instructional development leadership roles or working with student organizations and local clubs are valuable experiences for professional development.

After a teacher has a few years experience, it is desirable to share successes and failures with others. Mentoring a new teacher can have many rewards for both parties, though the primary beneficiary is the new teacher. Schulman and Colbert (1987) identify five key areas that mentors can help fledgling teachers:

1. Help teachers learn about the procedural demands of the school, such as grading and attendance,
2. Provide opportunities for teachers to observe other teachers so they have access to several kinds of models,
3. Share their own knowledge about new materials, unit planning, curriculum development and teaching methods,
4. Assist teachers with classroom management and discipline,
5. Engage teachers in reflection about their own practice and help them adapt new strategies for their own classrooms (p 13).

While many schools have developed formal models for mentoring programs in recent years, mentoring can be an informal, helping hand effort to a new or struggling teacher.

Another area that teachers can lend a helping hand is with school-based or external committees. Site Councils have become popular in melding parents, teachers, and administrators into proactive advocates for school improvement. Other committee involvement opportunities range from curriculum development, to vocational, and business advisory councils that can have a positive impact on school or student development. These committees can easily network teachers into other important leadership roles in curriculum and instructional reform.

Teachers can also foster professionalism in their buildings and promote their own programs and instructional agendas by sponsoring one of a variety of student technology clubs or organizations. The Technology Student Association, Vocational Industrial Clubs of America or Odyssey of the Mind are just a few student clubs that can garner student interest in pursuing additional technology experiences and career opportunities.

Grant Writing

Since technology is growing exponentially, technology education programs can never hope to be on the same level as current technology. It is important and necessary for the technology education programs to stay at a certain level of consistency. The professional technology instructor will seek out alternative forms of funding to meet this end. The teacher may seek out grants from business and industry. Grants will not be awarded unless the needs of the program are relevant to the industry distributing those funds. Consequently, it is important that grant proposals be carefully worded and structured to stress those concepts and key terms that the industry may be looking for. Hard work and practice can only develop this skill.

At Conway Middle School in Florida, the Technology Education Department was faced with a dilemma. The problem was to create a technology education curriculum that met the state Frameworks set forth by Florida's Department of Education. During the 1993-94 school year, a grant was written to the Department of Education to allow Conway Middle School to create such a curriculum. The initial grant was rejected. Undaunted, Conway submitted another grant proposal. This grant, to upgrade and renovate the existing facilities, was approved. The renovation process was started, but there were no funds appropriated for new equipment or the curriculum. With the help of the Program Specialist and the Director of Vocational Education, funds were allocated to purchase equipment for two laboratories (Knoblauch, personal communications, May, 1998).

An important component of any grant writing effort is to include building and district administration in the process. Often, administrative action is needed to apply, accept monies, or dedicate matching funds for a grant project. Also, the district administration must be able to assist in the proper management and distribution of funds. A supportive administration understands the importance of technology education, and is open to assisting in grant writing efforts.

Another important consideration in grant structure is consortia. More grants (especially federal monies) require (or at least favor) applicants working with other public agencies or entities. But it is important to get as much information about the granting institution and past grant winners. Reading past winning proposals, and talking to the people responsible, can help identify key elements for inclusion in a grant effort. Obtaining information from online grant proposal sources can also be helpful in the process.

Summary

Primary and secondary teachers are the front line of technology education. They are charged with not only teaching young people about technology, but attempt to advance a lifelong interest in learning from their pupils. These teachers wear dozens of different professional hats in the school and community environment. They must be role models, leaders, and experts in their respective curriculum areas.

Because teachers manage many different aspects of their classroom, they become resident institutional managers and share their expertise with colleagues. Because technology educators have a broader vision of technology, they can paint a broader vision for the rest of the educational community. In general, these teachers are hardworking professionals that champion technological knowledge and lifelong learning.

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Chapter 10 Teacher Professionalism in Higher Education

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The purpose of chapter ten is to examine the role of teacher educators in creating and promoting professionalism in future technology education teachers. In doing so, the author examines the role of the Academy and how professors relate to higher education, the university community, and elementary and secondary education. Within these various professional organizations/institutions the context of technology education as a profession is presented to uncover a variety of important professionalism variables.

The concept of being a member of a profession implies many things to people including being the caretaker of a special body of knowledge and practice, having a clientele that has a need for specialized services, and behaving in a manner that is ethical, moral, legal, and expert-like. Technology education fits the classical description of a young profession that has been engaged in an almost missionary rigor of research and practice to evolve a major philosophical curricula change during the past 15 years. This chapter will explore the role of professionalism through the following goals by:

- Understanding the roles of professors in technology teacher education and how they impact the professional standards of teachers, researchers, graduate students, and undergraduate students.
- Understanding the role of professional organizations at the undergraduate teacher education institution and the role they play on developing professional teachers.
- Professionally developing teachers in the classroom through innovative approaches to teaching, curriculum design, early field experiences, and student teaching.

- Preparing forward thinking public school teacher/leaders with the necessary tools to lead a dynamic discipline into the 21st century.

Like most professions that require a college level education, students arrive at the university with different levels of expectations. Most have a reasonably vague idea of what a teacher does because they have been in school with a dozen or more teachers while they were in elementary/secondary school. Probably one or more of those teachers motivated them to consider teaching as a career and that role model/mentor is what they would like to be when they start teaching. This process of passing on the torch of professionalism is a vital professional activity that some teachers take seriously while others seemingly miss the point. What is it that makes a teacher a professional who has a sense of pride about the importance of the work and the impact that the study of technology can have on children? Why do some teachers get more involved in the professional leadership aspects of technology education than others? What experiences at the undergraduate level promote and instill a true sense of professionalism? These and many other questions will be discussed as we look at the undergraduate experience in technology teacher education.

Professionalism in Higher Education

In higher education the dominant professional influence is the academic discipline. One is not necessarily a professor of higher education, but rather a professor of history, mathematics, science, technology, etc. Bennett (1998) illustrated this previous point:

> By the turn of the century, most traditional academic disciplines had already created their membership associations and special learned societies, and established regional and national annual meetings as well as scholarly journals. Special canons and distinct methods of research were regulated, along with terminal degrees as apprenticeship programs for inducting new members. This apparatus identified a discipline as a profession, established hierarchies of status among members, and defined intellectual legitimacy

> and prestige...by the end of the 1960's it enjoyed almost complete success organizing both curricula and faculty self-understanding. (pp. 46-47).

Traditionally, higher education has been at the forefront of leadership in technology education. The public deems teaching as a profession as noble and necessary in order to pass on knowledge to our children. According to Goodlad (1990):

> There are four conditions necessary for teaching to be a viable profession: (a) a reasonably coherent body of knowledge and skills, (b) considerable measure of professional control over admissions to teacher education programs and autonomy in determining relevant knowledge, skills, and norms; (c) a degree of homogeneity in groups of program candidates with respect to expectations and curricula; and (d) rather clear borders demarcating qualified candidates from unqualified, legitimate programs of preparation from shoddy and entrepreneurial, and fads from innovations grounded in theory and research (Goodlad, as cited in Fueyo and Koorland, 1997, p. 1).

Technology education fits Bennett's and Goodlad's criteria well. The ITEA (formed earlier this century) and its various curriculum projects/standards have identified and standardized a coherent body of knowledge and skills. National educational reform has tightened up the entrance requirements for teacher education in most states, and many practicing teachers now continue their education beyond the bachelor's experience.

This is a vast departure from a past that was defined by curriculum and pedagogy projects (American Industry Plan, IACP, Maryland Plan, etc.) almost on a yearly basis by influential teacher educators who had the "perfect plan" for the profession. In fact, one of the most significant distinguishing aspects about the technology education movement was that it was led by public school teachers and state curriculum specialists (Illinois, New York, West Virginia, etc.). It should be noted that teacher educators and professional organizations lagged behind in this process.

According to Shantz (1996):

> Professionalism can be broadly defined as accepting responsibility for one's own professional development and growth. Specifically, it refers to exemplary practice, and being aware of and experimenting with new developments in the field. (p. 1)

Professional practice in the above quote could be defined as the incorporation of specialized knowledge, self regulation, and special attention to the unique needs of clients. For professors that means conducting research and designing instruction that can improve the quality of technology education through the preparation of teachers, both in pre-service and in-service education. Most professors are evaluated on their performance in teaching, research, and service. Based upon the mission of the University, emphasis can be placed on research, teaching, service, or equally on all three. In reality, larger land-grant research universities value research over teaching, and smaller regional universities value teaching over research. Even this work is not subject to a professional code or management dictate. "Evaluating the quality and impact of a professor's publications is a job for the professor's peers, who have the ability to comprehensively assess the substance of the work" (HR on Campus, 1998, p. 13). So, in fact, the university in itself does not provide a professional code of conduct or dictate the levels of performance for its faculty. Instead, the faculty sets its own standards and regulates levels of excellence.

Professionalism in the Academy is also difficult to define because there are very few national rules that define performance in this area. With the exception of sexual harassment (which is defined by the federal government), most professors must turn to post-secondary faculty organizations such as AAUP or academic disciplinary organizations for codes of conduct, ethics, or other prescriptions or proscriptions for teaching-related behavior. Thus, there is no binding formal code of conduct for faculty (Bayer and Braxton, 1998, p. 2).

Professionalism in Technology Teacher Education

Technology teacher educators actively support professional organizations at national, regional, and state levels. Organizations like the International Technology Education Association (ITEA), the Council on Technology Teacher Education (CTTE), the Technology Education Collegiate Association (TECA) and Epsilon Pi Tau (EPT), have served well to provide guidelines for professionalism. From the ITEA's "This We Believe" statement to the three professional goals of Epsilon Pi Tau, guidelines for how to behave and what to value have been available and actively practiced by the profession.

The role of professional organizations is significant in identifying the common purposes of an academic profession. According to Hanson (1983):

1. There is strength in numbers. More political power can be realized when a large percentage of practicing professionals belong to the professional association.
2. Initiatives that are established by the association have better opportunity to be realized when the membership speaks with unity.
3. Associations provide a common link for professional discourse and discussion.
4. Professionalism is itself spawned out of active, purposeful activity as it is practiced by its members and observed by prospective or less dedicated members.
5. Association-sponsored gatherings, such as conferences, provide members with a forum for the exchange of knowledge and methods and approaches to carry out initiatives through informal conversations and scheduled speeches as well as refereed periodicals and educational materials.
6. Practicing professionals can become personally acquainted with professional leaders and subsequently may question and discuss reported professional positions. (p. 206)

The technology education profession has been blessed with a number of excellent teacher educator role models that have been curricula and professional pioneers in technology teacher education. The ITEA has a number of recognition awards that are used to recognize these professional leaders. Most recently, the association has provided an opportunity for leaders to be designated as Distinguished Technology Educators (DTE) if they meet certain leadership criteria. This recognition and others are examples of how the professional association promotes professionalism. The formula for professionalism and leadership is simple:

- **Active Involvement** with the professional organizations that support technology education at all levels.
- **Real Commitment** to continued learning and growth through scholarly endeavors that include research and publication, curriculum field projects, pre- and in-service pedagogy innovation, and human development/mentorship techniques that further the profession by increasing the leadership pool.
- **Personal Responsibility** for actions and performance in the classroom that reflect a high degree of quality, flexibility, innovation, respect, equity, and opportunity for all learners to maximize their potential.
- **Role Modeling** teacher behaviors and characteristics that include ethical, moral, and legal aspects of being a professional educator.
- **Team Playing** with other members of the teacher education faculty/administration in an effort to create an atmosphere/climate that is professional, inviting, friendly, rigorous, and exciting for all members of the teaching/learning body.
- **Vision** that includes ideals for technology education and practicing teachers as they work to increase the technological literacy of the nation's youth.
- **Public Relations** commitment to promote technology education to all internal and external audiences as a vital part of every child's general education and basic understanding of a complex technological society.

According to Bennett (1998):

> Most analysts agree that the health, wholeness, and attention to the common good of higher education—its ethics and what some would call its spirituality—are in jeopardy. For many educators, the college or university has become a job site and no longer an academy. (p. viii)

One of the surfacing problems is the trend of insistent individualism where professors operate within the academy as an island—highly specialized but committed to self rather than community. The sense of professionalism or commitment to an academic philosophy such as improved technological literacy via technology education is lost in the day-to-day rigors of promotion, tenure, department politics, and university posturing. This has negatively affected technology teacher education, particularly when it has been housed academically with industrial technology and engineering technology programs. A struggle for professional identity by technology teacher educators in a very competitive technological environment and a decade of declined technology education enrollments has replaced the "good old days of being at the top of the pack" with new pressures for scholarly productivity and resource allocations based strictly on enrollment metrics. Sadly, this has caused a number of professors to professionally "give up" and treat the position simply as a job or switch to the enrollment rich disciplines of industrial technology or engineering technology!

Yet, at institutions where the *team* spirit is alive and well, technology teacher education programs are thriving and making important contributions in curricula and pedagogy advancements. It has always been these very active *professional* programs (and they change from time to time from one university to another) that have led the way on developing exceptional technology education teachers who have been able to internalize professionalism and become active leaders. It is a very special thing when the "chemistry" of a university faculty comes together and a climate of professionalism is created. These programs produce almost all of the national teacher education leadership and uncounted numbers of local public school leadership each year. Sadly, again, in recent years the

numbers of such programs in technology teacher education has been in decline, especially at the doctoral level where future teacher educators are groomed.

Preparing Undergraduate Technology Education Teachers

Most technology teacher education programs have a standardized program of study that includes a general education core, a pedagogy core, and a technical core. These classes are supported by observation visits and student teaching assignments in the public schools that exceed a typical semester. The curriculum is based on the study of technology and in some cases is accredited by ITEA/CTTE/NCATE. The standards are reasonably flexible and encourage extracurricular student activity and professional societies.

Student advisement: Stronger programs have developed a mentor program where the concept of advisor has changed to personal mentoring and professional grooming. Students are identified very early in their education so that mentors can help prepare the student for the entrance requirements for teacher education. In some cases, mentors also serve as student teaching supervisors giving students the advantage of a professional friend and early planning for pre-student teaching site visitations and observations.

The concept of mentoring students should not only be practiced at the university by professors, but also taught to prospective teachers so that they can become mentors in the public schools. One of the oldest traditions practiced by technology teachers is to help *late bloomers* and *at risk* students find purpose in education. The skills needed to create a climate of trust and mutual respect can begin at the university by practicing good mentoring techniques.

The professional teacher: The concept of how to become a professional teacher should be introduced in the first professional course of pedagogy. This orientation should include a discussion of ethics, values, school policies, personal attributes and liabilities, and the values of fairness, honesty and consistency in the treatment of all human beings regardless of their race, gender, eco-

nomic background, political orientation, or sexual preference. All professors serve as role models and therefore need to practice the basic professional codes of behavior themselves. Discussions about other faculty members or students should be off limits by all faculty members and discouraged amongst the student body.

Too often students are *labeled* or *classified* by the system. The basic tracking system in public schools (college versus general, bluebirds versus yellowbirds, etc.) causes artificial boundaries when it comes to technology education. Technology teachers should be taught how to mix and match teams of students so that everyone can be successful and enjoy a high level of self-esteem. Orson Welles was once asked by Johnny Carson why his social parties were so successful. Welles replied that it was in his careful selection of the participants—like an orchestra, each guest adds to the melody. We too can orchestrate success as technology teachers through careful and meaningful planning of problem-solving teams.

Prospective teachers should also be taught about the dedication to lifelong learning that teachers face when they enter the profession. Most states require the master's degree within a specified number of years. Academic content (especially in technology) is a dynamic and fluid area that requires constant updating and reinforcement. Attending conferences, workshops, college classes, and significant professional reading will become even more important in the *information age* for all technology education teachers. Those who don't keep up will not find success in the classroom.

Technical proficiency: The technical core for technology education undergraduate programs is generally focused around information, production, and transportation technologies. There are a number of critics both within and outside the profession who believe that technical capability has been lowered because of technology education. While it is true that some of the old skills taught by industrial arts have been eliminated, it should *not* lead to the expectation that new teachers cannot use tools, materials, and processes effectively. Instead, it is a reality that the new tools of technology education are much more realistic in meeting the goals of technological literacy. Having said that, it is imperative that all technology teachers be taught how to use these tools, materials,

processes, and computers to a professional level. Even though the materials may be softer and the techniques lighter, all student projects should be well-designed and crafted—poor quality is not an option. The ability to apply skill and knowledge to teach the technological systems will gain prospective teachers a great deal of respect from fellow colleagues and students alike. Technical knowledge and ability is the foundation of a professional technology educator, just as writing and reading is the foundation of a professional language arts teacher.

Student organizations: Students should be encouraged to join student organizations and professional societies. Technology Education Collegiate Association (TECA) and Epsilon Pi Tau (EPT) should be at the top of the list for future technology teachers because they provide excellent opportunities to practice professional behaviors and leadership skills. These skills are important for prospective teachers because they build confidence and commitment needed to help them lead or organize a Technology Student Association (TSA) when they begin to teach. Passing on the professional torch via student organizations helps the public school, university, and national associations create strong and quality curricula while grooming new leaders for the future. The ideals of the student organizations are an excellent way for professors to practice professional values side by side with students.

Faculty who accept the responsibility for advising such organizations should themselves be willing to actively support students and their various projects. Too often the faculty advisor is AWOL when it comes time to "getting things done" because of other obligations or commitments. A lack of faculty support is a sign of poor planning and lack of commitment to a professional obligation.

Practice teaching: Teaching is the ability to share knowledge and know-how with others. There are techniques and some basic rules that help prospective teachers learn how to teach. Most universities call this part of the teacher education program "methods" and set up one or two classes to teach the basics of organizing content and presenting the material to learners. All of this, of course, must be put in the context of properly selecting content from a curriculum plan that has been designed for the level and ability of the learners.

Teaching is a developing skill that continues throughout one's professional career. There is an old saying that there are two types of experienced teachers: one that has taught for 15 years, and, one that has taught for one year 15 times! Growth and experience do matter in teaching, and the best place to get started is at the university in front of peers. Given the appropriate topic, fellow students in the professional class make excellent "role playing public school students," complete with behavioral problems and typical interruptions one would experience in the real situation. Another old saying: "the way to learn how to teach is to teach" is very true if coupled with constructive assessment and suggestions for improvement.

By the time students get ready to teach in the professional class they should have made several school site visitations to observe seasoned teachers and typical students. Combined with some adolescent psychology and curriculum development background, most prospective teachers put together their first lesson plan—a masterpiece of pedagogy! Not long after, they discover the art of delivery. This delivery includes anticipatory set, content, platform skills, class control, supporting aids, demonstrations, and finally, closing! Whew, I taught a class! How did I do? Am I a teacher yet?

It is at this point that professors can really make a difference. Good outcome assessment is the backbone for quality teaching. The assessment should follow "best in class" practices by making sure that students "do what they say, and say what they do" because structure in early stages of teaching creates good personal and professional habits. Students should also have the opportunity to teach a few technical lessons in what I will call a "technical laboratory-based pedagogy class" such as Transportation Systems, Communication Systems, or Production Systems. These classes lend themselves to excellent opportunities for technical content, systems analysis, problem solving, and technological assessment techniques unique to technology education teaching. Additionally, a follow-up activity can be required to make sure the prospective teacher is aware of how to tie content and process together for a complete learning experience. As a reward, have each student duplicate enough copies of the lesson and activity for everyone in

the class. This reproduction of lessons would provide each class member with 20-25 technical/pedagogy resources before his/her student teaching experience.

Student teaching: One of the most important professional aspects of a teacher education program is the practicum of teaching in a public school. Before the 1960s most technology teacher education programs had "laboratory schools" on campus where pedagogy and curricular innovation were tested and controlled by professors and student teachers. The advantage of these sites was the ability to modify the curriculum without a lot of red tape. Students could also get more involved in the experience beyond just the classroom. But even in the heyday of laboratory schools, not all-prospective teachers could be served by the innovative center requiring universities to use public school resources.

The Holmes Group recommended that professional-development schools be developed in partnership with universities. Goodlad (1990) makes the following point to support this holistic approach:

> Placement of a neophyte in a single classroom with a single cooperating teacher—the conventional way of handling student teaching—is a seriously flawed approach. It does not prepare future teachers to be stewards of entire schools—a growing expectation and a significant part of the mission of teacher education. (p. 281)

Today, exemplary teacher education programs should provide field work in public schools who have formed a professional partnership with the university and under the watchful eye of multiple cooperating and supervising teachers; the former public school technology education teachers and the latter, technology education professors.

Selecting school sites and cooperating teachers is one of the most important decisions teacher educators can make when it comes to professionalism. The public school teacher that the prospective teacher is assigned to will not only guide the first experience, but demonstrate each day how a professional teacher thinks, acts, responds, and views the role of technology education.

If that person is a weak teacher with bitterness or burnout, the student teaching experience will be a disaster for everyone. If that person is stuck in the tradition of the past, flexibility for the prospective teacher will be limited if not actually blocked, resulting in frustration and disappointment. Likewise, if the school/laboratory is in poor shape or disrepair, or lacks appropriate resources, the prospective teacher may not be able to accomplish his/her plan for technology education. While some may say that such schools are the real world and therefore a good experience, I would argue that student teaching is not the time to make that point, and we should select our best situations to start the careers of our future teachers.

Most supervising teachers (professors) conduct meetings and seminars for student teachers several times during the semester. This exchange of experiences is critical to the growth of prospective teachers experiencing their first real interface with public education as a teacher. This is an excellent time to reinforce the professional aspect of teaching and reminding them of the roles of ethics, values, character, and legal issues. Appropriate behaviors in response to student/teacher, teacher/teacher, or teacher/administrator situations should be clarified as the student's exchange their student teaching experiences with each other. The supervising teacher should also recognize and applaud well-handled experiences and use them as case studies on what to do in given situations.

While it is difficult to do given, the busy schedules of public school teachers, cooperating teachers should be provided professional training on how to be an effective cooperating teacher. This training should include what is expected of them; including topics on professionalism, curriculum, teaching, and outcome assessment. Personality profiles should be gathered so that student teachers can be matched to a compatible cooperating teacher. Additional topics might include feedback on how well prospective teachers are being prepared by the undergraduate program, the perceived quality of student body, and the perceived effectiveness of university faculty. This 360-degree approach will build strong professional relationships between the university and its cooperating schools, will meet the goals of the Holmes Group, and insure positive experiences for everyone.

Curriculum

The national standards and rationale provided by *Technology for All Americans* and the Council on Technology Teacher Education *Accreditation Guidelines* are flexible enough for most universities and public schools to accept. While they provide an excellent blueprint on what is important to teach in technology education, teacher educators should teach prospective teachers about how and why technology education goals were derived. A good background in the philosophy and rationale of technology education will provide new teachers with the ability to explain and defend their programs at all levels; from school boards to chambers of commerce. They should also be provided public relations resources that include brochures, videotapes, curriculum guides, design briefs, a copy of the national/state standards, TSA guidelines, and other materials that can assist them.

Students should also be well grounded on curriculum development. How do we select content from the huge pool of technology? What is the difference between teaching content or process? How do we set up problem-solving situations that are challenging and supportive of the curriculum at hand? At the very least, students should know how to construct a curriculum taxonomy so that relational information and topics can flow into an organized scope and sequence of learning. They should understand that it is impossible to teach *all* technology and that while content is important, the process of using technics, mathematics, and science to solve technological problems is the constant that provides learners with technologically literate experiences.

The basics of curriculum making are not hard to understand. Being well grounded in the philosophy of the discipline is a must if we are to produce future teachers who will lead the profession into the next century.

Promoting innovation: When our graduates leave college and begin their public school careers, they are enthusiastic, well educated, up-to-date on the latest innovations, and very inexperienced. The department they join (unless it is a one-person show) will be mixed with seasoned technology educators who have the experience advantage and a vested interest in the present cur-

riculum. It is important that prospective teachers be schooled in leadership skills and change processes. "Programs for the education of educators must involve future teachers not only in understanding schools as they are but in alternatives, the assumptions underlying alternatives, and how to effect needed changes in school organization, pupil grouping, curriculum, and more" (Goodlad, 1990, p. 294). Attitude and approach can make a new teacher successful or not successful in curriculum change that involves a set program that was designed by more senior colleagues. Understanding the "culture" of the school district and the academic department is not guesswork, but requires successful demographic and sociometric "methods" that gives the change agent a distinctive advantage. Technology education majors need these professional tools and skills in order to make advances when they enter the profession.

Community orientation: The technology education curriculum should be customized to meet the needs of the Local Education Agency (LEA) and the community that it serves. Technology education prospective teachers should be taught the value of community involvement and how to utilize community resources. Beginning with the formation and management of a technology education advisory board and representatives from tech prep and vocational technical education, prospective teachers should have well-groomed facilitator skills that will allow them to maximize the time donated by members of the outside groups. Advisory groups not only provide input for curriculum work, but also can help raise funds to support important projects. They are especially helpful in gaining support for grant applications, and curriculum change proposals that must be approved by the administration and board of education.

A case in point at a high school in Connecticut: The technology education instructor and students wanted to build an electric vehicle to enter in the American Tour De Sol race (a five-day rally event). Working with the technology education advisory committee, several retired Pratt & Whitney Aircraft Company engineers were recruited to help raise funds and work with the student team after school. They raised enough funding to build the vehicle over the next year

and finished first in class at the annual Tour De Sol race. The instructor's response: Community, Community, Community, just go for it!

Another instructor in Illinois used a local shopping mall to display and demonstrate student design projects. As the student teams demonstrated their projects people stopped and watched practically halting all traffic in the mall. The principal was so pleased with the community interest and publicity, he increased the technology education department's budget the following year. Again, Community, Community, Community!

Summary

Most professors do not realize the amount of impact they have personally on students. This is especially true in teacher education where the student body aspires to do exactly what their teachers are doing to them—teaching. In the new paradigm for preparing technology education teachers, the role of professionalism is paramount to the success of the discipline. As academic disciplines go, technology education is very young and is struggling to meet its potential—all this, in an academy that has hundreds of years of experience with boundless amounts of research and accomplishment. Technology education needs a new generation of professional teachers at all levels to conduct the research, teach our students, promote the discipline, experiment with the possible, visualize the future, and lead with professional dignity. We must learn to recognize and avoid Bennett's (1998) observations of "insistent individualism" and create unity at the university level by teaching and practicing the ideals of collectivism, team spirit, high level ethics, genuine values, and professional behavior. The next generation of technology teachers need skills beyond our traditional curricula fare that include abilities to work with and motivate their students, colleagues, employers, and members of the community.

Technology teacher educators must also prepare the next level of academic leaders with the necessary management and leadership skills to lead a dynamic discipline into the 21st century. The

days of *individual curriculum plans* by innovative teacher educators are over. The new generation of curriculum leaders must work together in concert with the ITEA to assure a consistently modern and high quality curriculum for all Americans. This requires people and organizational skills: professionals who can work in teams and derive consensus on important issues.

Professionalism also means supporting and being active in professional organizations at the national, state, and local level. This process of collective behavior provides opportunities for updating, renewal, opportunity to share, and recognition for quality work. It is the professional organizations that dictate membership rules of involvement and behavior. They promote the discipline and maintain the standards of quality. The professional organizations are also the gatekeepers to membership and entrance standards to the profession. To be successful at being a professional requires:

- Active involvement
- Real commitment
- Personal responsibility
- Role modeling quality
- Team playing capability
- Vision
- Public relations commitment

Fortunately, the technology education profession has many distinguished technology educators who serve as role models for all. We need more distinguished leaders in the future to formalize and teach leadership and professionalism in our teacher education programs. It will require new partnerships with our public schools, professional associations, and universities—partnerships based upon mutual interest and professional standards. But technology educators must take the lead and reform traditional programs and outdated practices. They must mentor the teachers of tomorrow with good examples of leadership and professionalism—they must walk the walk.

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Chapter 11

The Chairperson's Role as a Professional in Higher Education

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Introduction

The purpose of this chapter is to provide information relative to the characteristics of a chairperson's professional role in higher education. Emphasis is placed on the chairperson's role in a department or other academic unit in technology education. The goals of the chapter are to provide information relative to the various career paths to administration, outline the skills and knowledge for a chairperson, and highlight successful leadership programs for higher education.

This chapter addresses the aforementioned goals by first giving a background of how one becomes a chair. Following is a description of the various activities of the chairperson such as developing a vision, goals, and strategies; the nurturing of faculty and students; working within the various political arenas; developing and sustaining financial and human resources; and working with the various boards and entities which "control" higher education. The chapter concludes with an overview of the various leadership development programs that are available to chairpersons in higher education.

Career Paths to Administration

Jones (1994) states that anyone who has been given the task of chairing a department soon realizes that there is no training available for the job. He states that, in fact, the use of the term "department chair," is a misnomer of sorts. The term's derivation is from Europe in which a "chair" was a figurehead who sat at the end of a table (with a gavel in hand), called a meeting to order, and monitored its progress according to parliamentary procedure.

This view of the "chair" is nothing like the contemporary conception of the chairperson of a college or university department. The current chair is hopefully someone who serves at the pleasure of the faculty (if not, then the road ahead could be rough), and who has probably put her/his academic career "on hold," at least until the term of office is fulfilled. The contemporary chairperson of a technology education program should expect to be a leader, innovator, financial advisor, family and marriage counselor, international diplomat, fundraiser, "smoozer," storyteller, mediator, and magician, to name just a few. Certainly this current conception of chair is far-removed from its "gavel-rapping" ancestor of European descent.

Why does one become a chairperson? The reasons are varied. Some aspire to this position because it fulfills some kind of Maslowian psychological need (perhaps "need for recognition from others"). Others, however, become a chairperson because they are "drafted" by faculty colleagues or appointed by a dean or other academic officer. No doubt, some benefit financially by moving into administration. Whatever the reason, let's take a brief look at the different career paths leading to a position of department chair.

In examining the career paths of department chairs it is interesting to note that the majority of department chairs will return to faculty appointments after their terms of office. A few however go on to other administrative positions either within the department or outside of the department that they served as chairperson. For example, the position of department chair may lead to a higher level position such as division director, assistant or associate dean, or dean of the particular unit in which the person has served as department chairperson. Oftentimes this occurs in the administrative structure, which houses a school or college of technology. In other situations, department chairs may move on to other positions outside of the division, school, or college and assume administrative positions in a larger unit of which technology education is only one component. For example, a chairperson might serve in the role of department chair within a school or college of technology but move outside of the school of technology into a college of educa-

tion or engineering as a member of the dean's staff. As can be seen, there is no one set pattern for the career path of a department chair in technology education. It does, in fact, depend upon the administrative structure in which technology education is housed.

What then are entry-level positions to serve as a chairperson of technology education? Persons who serve in the chair position have demonstrated their interests and abilities for leadership early on in their career as a professor in a given department or unit. Such individuals will demonstrate leadership abilities by serving on important faculty committees such as promotion and tenure or undergraduate or graduate studies committees. By demonstrating effective leadership in inter or intra-departmental responsibilities, persons may be asked to serve as program leaders or "assistant to the chair" positions by faculty or administrative leaders. Success in these kinds of positions may earn the individual the right to be nominated for a vacant chair position or interim chair role. It is interesting to note that many who've served as department chairpersons have served as *interim* chairs or *acting* chairs and originally had no intent of serving as department chair. However, because of the effectiveness of their roles in these tentative assignments, and their abilities to earn the support and respect of faculty, they are often asked to apply for a vacant chair position or may be "drafted" or nominated by others.

The contrast to this is the person who begins his/her career with the ultimate goal of serving in an administrative role. Unlike the previous example, this person will plot out a very carefully designed plan for professional development that ultimately will lead to the application and obtainment of a leadership role as chair of a technology education unit. This type of individual often moves out of the institution as opposed to staying within his or her institution when compared to the earlier career path example.

According to the Center for the Study of the Department Chair (1990), a study of department chairs showed some of the transitions or paradigm shifts that occur in going from the role of professor to department chair. These changes are described as follows:

1. *Solitary to Social.* The college professor typically works alone on research, teaching preparation, and projects while the department chair must adapt to working through others. For example, department goals cannot be achieved alone, they must be done in concert with others. If goals are to be achieved it is crucial that the chair work in concert with faculty, administration, and the profession.

2. *Focused to Fragmented.* While the professor must have long, uninterrupted periods to work on scholarly pursuits, the work of the department chair, like other management positions, is characterized by brevity, variety and fragmentation.

3. *Autonomy to Accountability.* Professors generally enjoy control over their time and the feeling of autonomy of activity and movement in their working environment. As the professors move into administrative roles they lose this sense of autonomy and become more accountable to the faculty both for their time and accessibility in the office as well as for their actions and activities.

4. *Manuscripts to Memoranda.* The scholar and researcher labors over a manuscript for a long period of time. Before finding printers ink, the work goes through many revisions and critiques. The department chair quickly must learn the art of persuasion and precision through memos.

5. *Private to Public.* The professor may block out long periods of time for scholarly work while the chairperson has an obligation to be accessible throughout the day to the many publics he or she may serve. In essence, one moves from the privilege of a "closed door" to the obligation of an "open door" policy.

6. *Professing to Persuading.* In the academic profession, the professor is disseminating information as an expert. As chairperson he or she deals with others who have the same amount of expertise in their field. As the professor turns into chairperson he or she professes less and practices the art of establishing congruency among institutional, departmental and personal goals.

7. *Stability to Mobility.* While always growing and exploring new concepts and ideas, faculty generally experience movement within the stability of their discipline and circle of professional associations. Chairs also attempt to retain their professional identity but must become mobile within the university structure and among chairs at other universities. In order to be at the cutting edge of education reform and implement needed programmatic changes within their universities, department chairs must be more mobile, visible, and political.
8. *Client to Custodian.* In relation to university resources, the professor is a client, requesting and expecting resources to be available to conduct research, classes, and service activities. The chair represents the custodian and dispenser of resources and is responsible for the maintenance of the physical setting as well as provider of material and monetary resources.
9. *Austerity to Prosperity.* While in actuality the pay difference between professor and chair may not be significant, the perception of more control over one's resources may help the chair develop an illusion of prosperity.

General Responsibilities of a Chairperson

One of the critical skills needed for a chairperson is the ability to lead. According to Wenig (1995) "the foundation of the best in leadership for any educational organization is thinking through its vision and mission, defining both, and establishing them clearly and visibly" (p. 532). Baker (1992) stated that there were four critical elements for visualizing that certainly seem appropriate for department chairpersons of technology education. He stated that a vision must: (1) Be developed by a leader who is an intense listener and self-reflector; (2) Be shared. The vision is more powerful when individuals are acting together; (3) Be comprehensive and detailed. Each person must be able to identify what the vision is; (4) Be positive, inspiring, and large enough to enable the group to go beyond normal to attain it.

After the chairperson develops an institutional vision; goals, planning, and strategies can be developed which enable faculty to strive towards the vision. The development of goals, planning, and strategies can enhance effectiveness by providing a picture of how goals fit into departmental plans and budgets. These goals should be future oriented and faculty should be able to see how they fit into the big picture. While faculty make their own decisions in terms of short-term professional development goals, it is the role of the department chairperson to provide the future orientation framework that unites daily activities and budget decisions. Further, the chair provides a meaningful context for which the department understands its relationship to the goals and mission. In all cases, the mission and goals should be a vehicle, which inspire excellence and encourage creativity among faculty while attending to their varied interests.

As a part of the development of the department's mission and goals, it is the responsibility of the chair to work towards the development of resources to facilitate the mission and goals. Certainly, a good beginning is to clearly communicate the departmental mission to the dean (or other appropriate academic officer) in order to secure an adequate budget to realize the mission. Additionally, it may be necessary to seek resources outside the department or institution by writing proposals (and encouraging faculty to write as well) to state and federal educational institutions and foundations. Such funds can be used to supplement the financing of students, facilities and equipment, and be used to "buy" released time for faculty to engage in research and other endeavors. Chairpersons should make themselves aware of endowment funds and gifts and bequests that can be used for technology education. In some cases, it may be necessary to provide the leadership for starting these activities along with scholarships and other fund-raising endeavors.

After resources have been secured it is of utmost importance that a plan be put into place to "strategically" manage resources. A budget can be defined as a plan or schedule for a certain period of time that limits and adjusts expenses to match an estimated or fixed amount of money allocated for that period (Gmelch & Miskin,

1995). It is the challenge of the chairperson to define those departmental activities that contribute to the success of the department and to fund only those that are essential to the stated mission and goals. This "setting of priorities" is defined as "strategic planning." As a part of the strategic planning process is important that faculty be kept apprised of (or even involved in) the process for establishing departmental priorities. An attempt should be made to keep such decisions as objective as possible, sticking to objective criteria in line with departmental goals, and avoiding the "trap" of social or political decision making.

The Role of Chairs

Gmelch and Miskin (1993) asked hundreds of department chairs to reflect on what they did. Generally speaking, chairs saw their roles in four areas: (1) faculty development, (2) leadership, (3) management, and (4) altruism.

Those who saw themselves as *faculty developers* define their roles as recruiting competent faculty, promoting underrepresented minorities and women, nurturing and developing young faculty, and enhancing the professional development of all faculty. Simply stated, this group of chairs saw the development of a vision and mission and goals as a means to help faculty develop their skills and potential to sustain the institution.

A second group of chairpersons wanted to be known for their *leadership* in building a nationally recognized program. This group saw their role as primarily enhancing the department's reputation and providing the leadership for moving their program into the national limelight. In technology education, one can find many examples of these kinds of leaders. These leaders talk in terms of "making my department one of the top two or three in graduate or undergraduate education in technology education," with this emphasis driving what they do in terms of leadership for their respective departments.

A third group of *managers* saw their roles as maintaining their programs during tough times. This group sees themselves as "holding the fort" during restructuring and tough budget decision making. Success would be measured by "keeping the boat afloat" dur-

ing major financial crises and restructuring. Unfortunately, this scenario is all too often familiar to those of us in technology education. This person is one who sees the role of the chairperson to be an advocate with the dean or other academic administrators within the institution.

The final group in Gmelch and Miskin's work saw themselves as being respected for their personal quality: honesty, openness, fairness, justice, and *altruism*. This group sees themselves as "humanistic" leaders who serve at the pleasure of people. They pride themselves on the fact that they facilitate the skills, strengths, and needs of their respective faculty and see program growth and strength based upon what *people* do as a *central* focus and what the *chairperson* does to a *lessor* degree. In technology education, we see many examples of these kinds of chairpersons. They typically are promoting the achievements of their faculty while they maintain a relatively "low" profile. In fact, their faculty may be better known than the chairperson.

Responsibility for People

In dealing with various types of people, the chairperson's job becomes a very complex endeavor, and the chair assumes those roles that are most appropriate to accomplish the goals and missions of the institution. According to Tucker (1992) the role that a chairperson plays indicates how or in what capacity the chairperson relates to an individual or group in performing an activity. Tucker lists the following 28 possible roles that chairpersons assume to some degree at one time or another (p. 32).

teacher
mentor
researcher
leader
planner
manager
advisor-counselor
mediator-negotiator
delegator
advocator
representer
communicator
evaluator
motivator
supervisor
coordinator
anticipator
innovator
peacemaker
organizer
decision maker
problem solver
recommender
implementor
facilitator
entrepreneur
recruiter
peer-colleague

One of the roles that a chairperson plays is assisting faculty and students to develop their disciplinary skills. In this role the chairperson may be called upon to be a teacher, mentor, leader, planner, or advisor/counselor, to name just a few. Such activities as teaching faculty and students time management and self-management are examples of how chairs play out this role.

As a delegator, advocator, or recommender the chair may develop committees for students to help make decisions about the department, or delegate some of the authority to a very effective faculty person in accomplishing the mission and goals of the institution. Clearly, it is part of the job of an effective chairperson to get to know his/her faculty and students and to utilize their talents and abilities in facilitating the common goals of the institution. This skill, sometimes referred to as resource management, can be a very effective strategy in developing ownership for the shared vision of the institution.

In developing a shared vision, the chairperson might undertake the peer-colleague role in organizing a series of committees or meetings in which faculty, staff, and students are all a part of sharing the departmental vision. In this role, the chair needs to be a good communicator, motivator, and even a peacemaker at times. Developing a shared vision is not an easy task, but the payoff can be quite rewarding in terms of the long-term benefits for the department.

In negotiating and resolving conflict, with faculty, students, and the community, the effective chairperson assumes an even different set of roles. In resolving such conflicts, the chair will need to become a mediator-negotiator while maintaining a peer-colleague role during the process. Clearly, the role of peacemaker becomes paramount in helping two sides of an issue to come to grips with an opportunity to sit down and have meaningful discussions of problems. During such activities the chair needs to maintain a friendly environment which promotes the concepts of fairness, freedom, justice, with an unbiased opportunity to participate in negotiations and conflict resolution.

Chairpersons also have a responsibility to strengthen faculty professional development. In doing so, it is important to assess what individual faculty development needs are and to work to insure that faculty are provided with ample opportunities to meet

these needs. In some cases, this might mean providing resources for professional travel and/or released time from teaching and other responsibilities. Some faculty might need to be encouraged to take advantage of professional development opportunities with the chair acting out the "advocator" role. Professional development can occur within the department, division, college, or university; or may take place at state or national professional association meetings, institutes, or workshops. A part of the regular departmental agenda can also be set aside for the provision of professional development, as well. Such topics as "sexual harassment" and "making instructional provisions for students with disabilities" are examples of the kinds of professional development activities that can occur at departmental meetings.

Responsibilities with Higher Education: Coordinating Boards

Previously, the need for establishing a strategic plan for technology education was addressed. While much of what has been discussed thus far concerns the departmental chair's role inside the department, he/she also has a major responsibility to address the concerns of outside constituencies, which affect technology education. Technology education departments that maintain the status quo will no doubt over time either be abolished or be forced to change from political pressure from the outside. The department chair must constantly be in tune with forces that affect such factors as enrollment trends and program funding. In addressing the concerns of maintaining a dynamic technology education program which is responsive to the needs of the future, the chairperson should be prepared to plan for the future, cultivate support, plan programs and policies, establish market strategies, and interact with outside political structures.

Planning for the Future

Because of increasing financial constraints and a dynamic market for the products of technology education programs, the chairperson should be prepared to plan for future problems or opportu-

nities. Further, long-term planning may be necessary to address such issues as faculty (and student) recruitment, faculty and staff development, equipment purchases, facility renovation, and the exploration of grants or development funding opportunities. Such planning should include at a minimum a vision of the role that the technology education department plays within its own college or university structure. For example, some programs may exist in a political structure where teacher education is devalued while the emphasis on industrial technology programs takes on an even greater role. Likewise, undergraduate teacher education programs may be devalued or eliminated in favor of post-baccalaureate teacher certification. Moreover, there may be increased pressure for technology education to integrate with other subject areas or disciplines such as mathematics or science education.

In addition to intradepartmental planning, chairpersons should also focus on interdepartmental concerns. For example, boards of education, boards of regents, higher education boards, and accreditation boards may impose standards, which have some implications for the future direction of technology education programming. The recent International Technology Education Association's Council on Technology Teacher Education's affiliation with NCATE has forced many technology education programs to change at a time when they were not prepared. Some anticipation of these changes and future planning would have made the process much easier for many institutions. The elimination of the undergraduate teaching major in several institutions has made technology education become more responsive to nurturing relationships with liberal arts and engineering colleges that may become possible feeder programs for technology teachers at the post-baccalaureate degree level. An effective chairperson is one who scans the political horizon, anticipates such changes, and has a plan in place to deal with such outside forces.

Another major responsibility of the departmental chairperson is to cultivate support for his/her respective programs. Inherent within this change is the need to clearly communicate the positive aspects of the technology education department and how it fits the broader mission of the institution and constituencies outside the

institution. At a minimum, the dean or other academic officer inside the institution should understand the mission and goals of technology education and recognize its importance among other academic units within the institution. Outside sources, such as business and industry and K-12 educational institutions need to appreciate the value of technology education in their respective settings. Lastly, technology education departments within other institutions should recognize and support a given department's reputation through interactions in professional associations and as a contributor to research in the field.

Framing Programs and Policies

A key link to planning for the future and cultivating support for respective technology education programs should be the framing of programs and policies. Programs inside the department should be intellectually sound and operationally adequate to meet the needs of one's own institutional goals and the needs of outside constituencies who are recipients of technology education students. Simply put, new programs should be devised when appropriate and old programs should be abolished. While these decisions are often very difficult, they are critical to the long-term health of the technology education department. Improving the health of some departments will require the devising of new policies or practices that relate to programmatic decision making. Such policies might have implications for student recruitment, faculty teaching and research, and/or requirements for promotion and tenure.

Establishing Marketing Strategies

"Do a good job and tell everybody about it!" This statement captures the essence of the need to develop marketing strategies for technology education programs. Chairpersons should recognize that marketing includes strategies aimed at both students and non-students from both inside and outside the institution. Student marketing strategies should include activities that alert students to opportunities as a technology education major. Marketing can include the development of print and electronic communication

materials such as brochures, videotapes, Internet web pages, and the like. Non-student marketing strategies may include such activities as speaking to non-technology education classes within the institution; speaking to technology education students in middle and high schools; and the purchase and airing of commercial advertising.

The responsibilities of technology education department chairpersons are not complete until there is some recognition of the fact that interaction must occur with outside political entities such as the legislature and coordinating boards for higher education. Chairpersons can provide data and research either directly or indirectly which can affect the behavior of state or federal legislators enacting legislation for the promotion of technological education. In some cases, other lobby groups will call upon the chairperson as the perceived leader of technology teacher education in a given state, to provide expert testimony relative to the value of technology education at the K-12 or collegiate level. Furthermore, chairpersons need to recognize their role in influencing key higher education decision makers such as members of boards of regents and/or other higher education boards of education. The interaction of the chairperson with legislators and higher education coordinating boards however can become a tightrope walk, which needs to be handled with the utmost political savvy. The chair needs to recognize when interaction with such groups might be in conflict with his/her own institution's priorities or goals and should to be careful when planning such activities.

Successful Leadership Programs for Higher Education

The training of chairpersons is usually done in conjunction with a number of professional development opportunities that may be offered within one's own institution or in other contexts outside of the institution. Such professional development opportunities may include training in very specific skills (e.g., "budgeting" or "human relations"), or may center on much broader themes such as the development of management or leadership skills. In all cases, such

programs are designed to help chairpersons prepare for the myriad of challenges as leaders and administrators of technology education. Topics such as diversity, governance, faculty and student evaluations, budgeting, personnel issues, program development, and strategic planning may be covered in such programs.

A number of professional development opportunities for chairpersons may be housed within their own respective institution. Academic leadership workshops and specific administrative skill workshops are offered many times through a university or college's Office of Human Resources. Universities also may take advantage of workshops that are provided through a consortium of universities. One example would be the CIC Academic Leadership Program which is a consortium of all of the Big Ten schools (and the University of Chicago) who have joined together to provide an annual academic leadership program for fellows from their respective campuses.

Some university-based programs are well known in terms of their respective legacies in preparing individuals for management and leadership positions. One example is the Alfred P. Sloan Foundation, Sloan Research Fellowship Program that offers programs for Young Scholars and for those who are enhancing their careers in administration. Harvard University offers the Institute for the Management of Life-long Education, the Institute for Educational Management, and Management Development Program (to name a few) which are typically two-week summer programs designed to develop or enhance the skill of leaders in management positions. The Center for Creative Leadership (North Carolina) provides educational opportunities for aspiring leaders in all fields.

In addition to university-based professional development programs, there are a number of commercial vendor-sponsored management and leadership development institutes and workshops. Arthur Andersen, Xerox Learning Systems, Wilson Learning, and the Forum Corporation are examples of such efforts. While Arthur Andersen's focus is more on the consulting aspect (and focuses on individual program or client needs), Xerox, Wilson, and Forum focus on a whole system of learning reinforcement and measure-

ment—all directly linked to real issues and goals. Wilson Learning, for example offers a series of one- to three-day workshops focusing on such aspects as management styles in conflict, supervisory leadership series, management in a changing environment, and managing human performance.

Some corporations have their own corporate colleges that offer training primarily for their own workers but also provide opportunities for the training and leadership development for clientele outside of their organization. One of the best examples of this would be the Hamburger University that offers a series of management and leadership skill training efforts for employees of the McDonalds Corporation, but also offers these same opportunities for outside clientele.

Whatever the form of a successful leadership program for higher education, there are several practices which are common to all such programs. First, these programs have an involvement and commitment to leadership. Second, all such programs have very clearly stated educational missions with well-articulated programming to sustain the mission. Third, coordinated, integrated, and purposeful development activities are a part of all programs with ongoing evaluations of program effectiveness. Programs are constantly evaluated, revised and modified to satisfy changing needs of respective clientele.

Summary

This chapter presented information on the characteristics and strategies that allow individuals to be effective as chairpersons in higher education. A review of the different career paths to entry of administration was articulated demonstrating that there is more than one way to become an academic chairperson. An overview of the skills and knowledge for being a chairperson was highlighted, including a description of the general responsibilities of a chairperson such as the development of an institutional vision, development of goals, planning, and strategies; development of resources; strategic planning; and working within a political structure.

The chairperson's responsibility for people was highlighted, including aspects of working with both inside and outside constituencies that affect the respective technology education department. Activities that assist faculty and students to develop their disciplinary skills were highlighted along with how to strengthen faculty professional development activities. Ways of establishing and communicating a shared vision were discussed along with the use of negotiation and conflict resolution strategies with faculty, students, and communities.

A description of the responsibilities of chairpersons in coordinating their activities with higher education boards was discussed. Other important topics relative to the role of the department chair dealt with: planning for the future, cultivating support for the departmental program, influencing political organizations such as the state legislature, establishing marketing strategies, and framing program policies. This chapter concluded with a description of successful leadership programs within higher education and the practices inherent within successful programs.

Regardless of the route taken by an individual to arrive in the department chair position, it can be seen that it is an important role that can greatly impact the technology profession not only at one's own institution, but at other institutions and constituencies as well. Department chairs must take their role seriously in impacting the faculty under their responsibility whether as a coach, as visionary leader, or as manager for active participation in the technology profession.

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Chapter 12

The Administrator's Role as a Professional in Higher Education

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Introduction

The role of administrators as professionals in higher education is diverse, complex and undergoing rapid change. At the root of this dynamic environment is a burst of new knowledge that is unprecedented in the human experience. This chapter will outline some of the perspectives that come to play on the stage of the future.

Purposes of the Chapter

The purpose of this chapter is to provide an overview of the role and function of administrators in higher education and their impact on professional technology teacher education. The goals to be achieved are threefold: 1) to call attention to the importance of administrators in the success of quality programs, 2) to provide an overview of the administrator as leader, and 3) to provide examples of successful leadership strategies that administrators can use in advancing the field.

Colleges and universities are unique in the ways that they are administered. Some institutions have a collective bargaining agreement with their faculty while others do not. In some institutions the department chair is a chair of the faculty while in others they take on more of a head function and are considered an extension of the institution's administration. In other cases the department chair serves in a term arrangement while others may be appointed and serve at the pleasure of their dean. In addition, many institutions have additional administrative functions being performed by pro-

gram directors, curriculum coordinators, student teacher supervisors, or faculty leaders in specified content areas. These additional administrative functions are carried out within the department or outside the department, but within the college/school/division or may function collaboratively across administrative units.

Since Chapter 11 is specifically focused on the role of the department chair, this chapter will address administration as a broader college and university function and include the administrative roles of dean, vice president, and president/chancellor.

In most instances technology education programs are provided by public higher education institutions, but in some instances the institutions may be private. While there are differences between public and private institutions, particularly in their overall governance at the board level, the perspective taken in this chapter will be as generic, universal, and operational as possible.

Goals of the Chapter

The goals to be achieved by the reader of this chapter are to gain insight into the breadth and depth of the behaviors of administrators in relation to technology teacher education. In addition, the reader will gain an appreciation for the complexity of the functions that are attended to by administrators. Lastly, the reader will acquire a feel for the roles of creative and novel practice by administrative leaders in the field.

Overview of Chapter

The chapter will focus on outlining the importance of administrators, their roles and selected leadership elements as they provide support for technology teacher education. The chapter will review budget and financial planning principles, outline the importance of faculty development programs and their role and function regarding curriculum and assessment.

In completing the work of the chapter, the author addresses the task of strengthening faculty development, the establishment and communication of shared vision, and outlines several leadership strategies utilized by administrators.

Overall Importance of Administrators

When being introduced to others, the author often uses the phrase, "I work to support everyone else at the university." While this often results in some light commentary and an occasional chuckle, it should be taken seriously, as that is truly the number one function that a president can take. In "working to support everyone else," it should be noted that this starts by assisting others to catch the vision of greatness, generating the resources to support the teaching and learning environment and carefully assessing the success of our efforts. A "right side up" pyramid communicates this concept well and should be considered by administrators in setting the course for their constituents.

Role of the Administrator

The Administrator As A Leader. Some individuals in higher education may propose that administration and leadership are two completely different concepts, while others would counter that while the administrator is charged with the responsibility, they are also expected to be a leader. With all the latest buzz words of team building, "right sizing," re-engineering, global competition and cyberspace going on in the private sector, how might these same ideas be dealt with in the academic setting? If we have checked the business section in a bookstore lately, we come to the conclusion that the "emerging field of leadership is the next logical step in today's fluid, self-defined workplaces. Leadership today is more about cooperation than hierarchy, more about who has a good idea than who is in charge" (Gage, 1996). In the academic environment this is even more so where we find shared governance, participative decision-making processes, and joint responsibilities for the consequences of our actions.

Leadership Styles of an Administrator

Academic Leadership: Faculty and Student Recruitment. It is expected that the administrator in higher education, whether a dean, vice president or president, is first an academic leader. In most cases, the person was a successful faculty member who dis-

played leadership characteristics that distinguished her or him from other colleagues. This commences in the academic environment and continues to evolve into higher levels of administrative responsibility.

Academic leadership serves the administrator well in the process of making judgments when recruiting faculty. Having experienced academic success and possessing the full understanding of the requirements of the rigors of faculty leadership in a dynamic field of study provides the administrator the context to make improved decisions when hiring outstanding faculty. This carries over in the recruitment of students for the college or university programs as well. Many students who enter technology teacher education programs come from a base where they experienced an outstanding program and wish to emulate their former teacher. Others know that they like technically related fields, started out in such fields as engineering, architecture, or science and then discovered the dual interest in working closely with people. The academic leadership experience of the administrator prepares him or her to understand the relationships of these dimensions of faculty and students, enabling him or her to build on the synergy of academic excellence to the advantage of the institution and the success of the program.

Budgeting and Financial Planning. All is for naught if it can't be paid for! The leadership style of an administrator in the budget and financial planning of the college, division, or institution, is critical to the success of the programs that it delivers and the students that it educates. New revenue streams must be sought to meet the rapidly rising costs of education as the conventional sources of institutional allocations and tuition appear to be inadequate in the future. Does this make for a case of a "composite university"? One such venture, Responsibility Center Management (RCM), draws from the experiences of the University of Southern California, Indiana University, and the University of Michigan. Curry (1996) outlines how financial management can take on a significantly different role and process as it addresses the issues of mission, accountability, and effective utilization of resources and restructuring. The RCM:

- allocates earned revenues and indirect costs to schools or large departments
- vests deans and faculties with fiscal responsibility (accountability) commensurate with their academic authority; and thus
- requires schools and departments to develop budgets through projecting their earned revenues, constraining expenditures accordingly and managing budget performance to meet their bottom line targets
- rewards positive performance by allowing centers to carry forward year end surpluses and sanctions negative performance by requiring deficits to be repaid
- earns or retains sufficient revenues centrally to augment school earned revenues to implement university wide priorities or recognize differences in school specific unit costs. (Curry, 1996, p. 10).

The above example of budget and financial planning illustrates how conventional thinking can be augmented by other models to gain more ownership in the fiscal conditions of the academic workplace and place the college and department on a more entrepreneurial model of operation. This example places the responsibility at the closest level to the activity and the faculty tends to bring reality to the way resources are utilized.

Faculty Development Programs. The central source of excellence in program success is the quality of the faculty who are teaching, researching and providing service for the program. Facilities, library holdings, and curriculum generally follow the lead of the faculty. Hence, the primary task of the administrator as leader is to hire the most outstanding faculty that can be employed and then invest heavily in their continued development! A manager of a large family owned Caterpillar dealership (one with over 500 employees) related in a keynote address that his dealership invests over $2500 annually in each of their employees to ensure that their customers are being satisfied! (Hitch, 1996) If this is important for those who are delivering technical service, then we can easily extrapolate how important it is to provide quality faculty development for those who are expected to be at the leading edge of their fields!

While it is essential that the college and university provide for faculty development, Pritchett (1996), reminds all of us that each of us must make sure that we contribute more than we cost. He relates that:

> It's your contribution that counts. Not the hours (or years) you put in. Or how busy you are. ...Prove your worth to the organization. Make a difference. Add enough value so everyone can see that something very important would be missing if you left (pp. 10-11).

The role of the administrator then is to lead faculty and staff through an environment where fewer external publics understand well enough or, even if they do understand, are concerned enough to provide the resources for the programs to adequately function. Hence, adding value, entrepreneuring, and seeking synergistic relationships for the college or university to gain a more positive position are essential to the development of the personnel of the institution.

Revising or Implementing Curricula. The revision and implementation of curricula is a "continuous improvement process" when drawing on an analogy of the private sector. In updating the curricula, we come to the questions of what is taught, when it is taught, and where it is taught. Among the many avenues to improving the quality of educational programs, and to simultaneously address the "what/when/where" questions, is to increase the engagement of information technology. Massy (1966) points out, however, that.

> Information technology is a threat as well as an opportunity. For those inside the academy, full-scale adoption means questioning traditional academic routines—including, in all likelihood, the standard definitions of faculty workload based on courses and semesters. Student-initiated learning will improve educational value added, but in doing so it will change the faculty's role and undermine the academy's monopoly over information and its transmission (p.4).

Assessment of Faculty and Programs. The quality of technology education programs and the faculty who deliver them rests with regular assessment, feedback, and continuous improvement. In the conventional higher education approach, faculty are evaluated within the policy guidelines of their institution and are thus impacted, depending upon the policies of their respective college or university, on their promotion, tenure, and financial remuneration. Programs are likewise assessed through internal institutional reviews, accreditation, certification, system-wide evaluations, and through external advisory boards.

However, a report of the Educational Commission of the States (1995) stresses that we should go beyond the traditional modes of assessment and engage in an expanded set of "quality principles." These are proposed as follows:

- Student-centeredness, including a faculty committed to teaching and personally attentive to students, a focus on the development of the whole student, and readily available support services designed to ensure student success.
- Commitment to specific "good practices" in instruction, including active learning, high expectations, and high levels of student involvement as well as easily accessible "tools of learning"—library and information resources or computing and instructional technology.
- "Quality management" practices, including a clear set of goals that focus on doing a few things well: coherence of goals, incentives, and rewards, organizational structures and the presence of effective institutional processes for assessment and self-improvement.
- Efficiency and integrity of operation, including attention to cost in relation to benefit and the presence of both the resource information and outcome data needed to make sound investment decisions.

Overall Goals of an Administrator

Assisting Faculty and Students to Develop Their Disciplinary Skills. There are two distinct kinds of "disciplinary" skills! Gaining skills in the academic discipline that one is teaching or learning is imperative for the effectiveness of the person. The other "disciplinary" skill is to be able to discipline one's self to the task at hand. The attentiveness to detail or the intensity of focus that one engages in when teaching, learning, and doing! Both are equally important and it is the challenge of the administrator as a leader to have everyone engaged in these "dual dynamics" of the field. The leader should continuously seek ways to foster the pursuit of the theoretical and the firsthand engagement of the practice! The administrator as leader must also understand the need to promote the importance of values and the passion of curiosity. Pursuing both types of disciplinary skills is essential to staying ahead of the pack. As Charles Schwab stated, "you have to compete with yourself before others do" (Schwab, 1996 p. 15).

Strengthening and Empowering Others. A definition of a leader requires that there are followers! Stronger and more capable followers translate into a more successful leader, and hence, the success of the organization itself. Some have stated that a career is now not so much a ladder of roles, but a growing reputation for making things happen. This can only be done when others are strengthened and empowered. A perspective such as this generally reflects an organization where the leader has energized, focused, and empowered his or her team to the point where they are on a common quest, a shared vision, and are setting the pace for others to gage themselves against.

Strengthening the Faculty Professional Development (Balancing Workloads). In higher education, colleges and universities are responsible to carry out the three functions of instruction, research, and service. The appropriated assignment for these three functions varies from that of a research-based university to a teaching mission institution. For instance, usually in a land-grant institution the teaching assignment is for less credits than it is in an institution that has a history rooted in that of a former teachers' college. Likewise,

a research-based university receives additional state and federal funding to offset the monies generated by student class enrollment at a teaching mission-type institution.

In all cases, however, it is imperative that all three functions be embraced by all faculty in the appropriate percentage of effort that fits the mission of the institution. Hence, all faculty should be involved in research, whether it is basic, applied, or development oriented. This function keeps the faculty on the leading edge of their fields of endeavor and assists in "pushing the envelope" of new knowledge and application. In the service area of the faculty member's assignment, this comes more naturally as society looks to the university for assistance in meeting its needs and solving its problems.

Few sectors in society provide such a dynamic environment to work in as we have in higher education. Pursuing knowledge, teaching it to others, passing along the concepts and theories of the field from one generation of scholars and practitioners to the next, and fueling the passion for improvement, are all dimensions that excite us as we reflect on our profession.

Establishing and Communicating a Shared Department Vision. Peter Senge, in his book, *The Fifth Discipline: The Art and Practice of the Learning Organization* (1990), has one of the better-articulated perspectives on developing a shared vision. Built into the core disciplines of building a learning organization, 1) systems thinking, 2) personal mastery, 3) mental models, 4) shared vision and 5) team learning; he and others, have expanded on the concept in a handbook that assists practitioners in the implementation and communication of a shared vision (Senge 1994).

Mentoring Faculty. The provision for faculty mentoring becomes a two-way street. New faculty need the wisdom and experience that has been accumulated by more experienced faculty to enhance their growth and development. It is not often thought that older faculty need mentoring, but it is proposed that the impact that new faculty, who many times possess knowledge and skills that are needed by the more experienced faculty, can in change serve as a valuable resource in their role.

A CEO of an electric utility once stated that his introduction to and education in the application of computers came as a result of "adopting a kid!" What he had done was to employ a young adolescent who was a computer whiz to work with him on a one-on-one basis and "mentor" him on all the dynamics that he should know about applying computers to his work. This opportunity for the young student to work for a major corporation rather than a fast food operation was appealing and, in turn, it provided the CEO a casual mentoring environment to learn the basics of a technology that he sought. Young faculty then, can serve just as an important role as mentors, as can more experienced faculty and administrators.

Promoting Equity and Diversity

The administrator in higher education is in a continual process of promoting equity and diversity in their organization. Creating and sustaining an environment that increases openness and opportunity tends to foster freedom, fairness, and justice in the organization. The promotion of unbiased opportunities will not only increase the spirit of enthusiasm for faculty and staff of the department but will quickly spill over into the student body and enhance the total educational effectiveness of the institution.

Successful Leadership Strategies Used by Administrators

Office Power. Fisher (1984), in his book *The Power of the Presidency* outlines that certain power comes with the appointment to lead a college or university. He indicates that the power comes in the many different forms of coercive power, reward power, legitimate power, expert power, and charismatic power, (pp. 20-41). While administrators, whether a president, provost, or dean have at their disposal a variety of different types of "power" entrusted to them, each of them utilizes the power to match their particular administrative and leadership style and in concert to the situations that they find themselves in.

The "power" entrusted to administrators by the faculty is likewise unique to the person, the institutional environment, and the

particular time of the relationship. If the institution is in tight financial conditions, the faculty will find the administrator to be less able to fund and support new ventures than if ample resources are available to foster them. Likewise, the concept of shared governance comes into play as faculty and administration work together for the betterment of the program, the institution and the society within which it serves.

Personal Characteristics

Professionalism. What makes life so interesting is that it is made up of individuals of "all walks of life"! The particular commitment to professionalism that a person has in a leadership role will determine how involved the administrator will be in the field. Some will leave the work that they have done in their particular discipline and commit their expertise and professionalism to that of the leadership that is called for at the institutional level. Others, who value their academic career as a lifelong commitment, will continue to provide leadership to their field.

Social and Professional Style. The approach taken in the administrator's social and professional style should be one that is natural and consistent with the individual. The social skills and the professional ability to lead can be different, but they must be effective. The use of humor can ease a tense situation, provide release, and even make an important point. Likewise, the particular call for being knowledgeable and informative in dialogue and decision-making is essential.

Institutional Expertise

Knowledge of Issues and Workings. Every department, school/college, academic affairs division and institution has a complex and ever changing set of knowledge concerning the workings of the unit. To complicate the conditions of the unit even more, the issues and workings of the organization are continuously changing and becoming more interwoven. The administrator in a situation such as this, finds him or herself in an ever "moving-target" situation within which to manage and lead.

Communicating Information to Departmental Faculty. One can never assume that they have accomplished the task of full and complete communication. Communication is like marketing, it is like building trust, and it is like serving your clients. Once it has been accomplished, one has to begin planning immediately to do it all over again and to strive to find even more and better ways to do it.

Finding Research Opportunities

Identifying Issues or Problems that Require Research. The world is full of opportunities for research, but it is important to understand that the focus and efficient use of limited funds to support research is essential. Finding the opportunities, locating the funding, and establishing the relationships for sustained research efforts can be enhanced by the administration of the college or university. Many times research themes and funding priorities are sought by organizations and administrators who are involved in the setting of these. Serving as a link to the faculty, and to assist them in securing grants for their research efforts, is a common role of administrators on all levels.

Establishing Research Positions. On occasion, to meet institutional or sub-unit priorities, research positions are established. Often these are not full-time positions but rather offer released time to address the opportunities. This is particularly true where research promotion, proposal development, and coordination is sought within the institution.

Working Within Organizational Structures. The institution must establish effective organizational structures to manage its research and development efforts. These structures should be designed to enhance faculty research efforts and eliminate as many deterrents as possible to the innovation process. Then, after these structures are put into place, faculty are in-serviced on how to use them, and people are held responsible for administering them, the institution should see opportunities begin to blossom. Systems are there to support efforts rather than become bureaucratic red-tape obstacles that inhibit research efforts.

Influencing Secondary and Post-secondary Education via Research. Findings from research and development should be the base from which improvements are made. With the interface that we see between the success of secondary and post-secondary education programs, we see that it is important that research be the major influence of making improvements. Research that improves post-secondary programs can be translated into teacher education effectiveness and thus, make significant improvements in secondary programs.

Formulating Goals and Strategies to Achieve Desired Outcomes

Goal Setting. The process of setting goals can be complex, yet it is one of the most important activities that any organization does. Prior to setting goals, the organization must revisit its mission and determine if it is up to date and appropriate for the unit. The Mission Statement describes the institutional "intent." Likewise, if no statement of Vision exists, one should be developed to complement the Mission Statement. While the Mission Statement describes the "intent," the Statement of Vision outlines what the organization "aspires to become." There are many approaches that can be taken to provide input into the goal setting process. Some of the more far-reaching approaches are to conduct a programmatic audit, undertake a Delphi study of the future, or conduct a needs analysis of the field. As these processes are undertaken, the validation process of testing them for relevance through the response of an expert jury or from data gathered by research is completed.

Achieving Support for Strategic Goals. An effective way to achieve support for the strategic goals that were developed is to actively engage the faculty and staff in their development. If these goals are "their goals" then those who are charged to implement them are more enthused about the relevance and appropriateness of the goals.

Working Within the Political Structure of an Organization. All organizations have a political makeup, though it is often invisible to most on the outside of the organization and confusing to many on

the inside. However, those who have taken the effort to learn the system and are aware of how to utilize the "politics" of the situation, have an advantage over those who have not.

Networking. Networking is a contemporary term for "keeping in touch" and for continually (and relentlessly) seeking contacts in building relationships that might become useful in the future. Networking also serves well as a communication device for keeping both internal and external constituents involved and informed.

Negotiating and Bargaining. In some colleges and universities, faculty and staff are collective bargained. In instances like this, the administrator sometimes is actively involved in the negotiating process if selected by the institution to serve on the negotiation team. Careful negotiating on both sides is necessary as once the agreement is reached it will govern much of how the institution will operate on the day-to-day basis.

Summary

The role of senior administration in a college or university is complex and many times seen as quite distant from that of what goes on at the program level. It is important that deans, vice presidents and presidents, not permit the heavy demands of their positions to take away from the personal interest and support of individual programs. What is known is best understood when the faculty and staff work to keep their senior administrators up to speed on the rapid developments of their field. Likewise, it is imperative that administrators take that extra effort to invest in their institutions that element of support that comes from being on the team that is pursuing excellence.

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Professionalism for the Future

Chapter 13

The Professional's Role in Strategic Planning

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This yearbook chapter is designed and laid out to differentiate the planning processes of strategic planning from other types of processes for planning. Each of the concepts/processes will be identified so that the reader will be able to recognize among their names, their respective characteristics, their advantages, and their outcomes. Finally, examples of the concepts of strategic planning will be presented so that the reader may execute their own planning model for their particular environment.

Every professional has a role to play in strategic planning. Strategic planning is one of the "newer" techniques being used in higher education today (1998). This "new" model is coming from the field of management and is being put into practice in many areas of education. The term "strategic planning" has been in the literature for a good number of years. The writer's first contact came from the book, *Academic Strategy* by Keller (1983) in the early 1980s. Keller was attempting to forewarn the academy about the future and the need for change. Richard Cyert president of Carnegie-Mellon University, writes in the preface of the book about the concept of strategic planning in education.

> Strategic planning is a new development of great potential. ...Strategic planning deals with a new array of factors: the changing external environment, competitive conditions, the strengths and weaknesses of the organization, and opportunities for growth. Strategic planning is an attempt to give organizations antennae to sense the changing environment. It is a management activity designed to help organizations develop greater quality by capitalizing on the strengths they already have. (pp.vi-vii)

Cyert continues his thoughts on strategic planning by mentioning the need of several other essential elements necessary for the execution of this type of planning. These include participatory management, decentralization, entrepreneurship and idea-generating abilities of the faculty, and the involvement of the faculty through their contributions to the process. Using Cyert as a point of departure, the literature since 1983 begins to focus in on the process of strategic planning and how to make it work in the academic/educational setting.

The early writers were correct in their forecasting that strategic planning would come to higher education as a tool of the 1990s and the new millennium as well. Keller (1983) believed that six factors or forces were at work in higher education. The six forces have become shifts in paradigms in the 1990s. They are: (a) The changing student clientele, (b) the disintegrating college curriculum, (c) the increase in competition within higher education, (d) the technological imperative, (e) the faculty conundrum, and (f) the tightening grip of outside controls.

Keller was right! Higher education in the late 1990s is surely different than when he wrote in the early and mid 1980s. Some of the literature in 1998 even expands Keller's ideas into a more detailed projection of the future. Dolence and Norris (1995) in *Transforming Higher Education: A Vision for Learning in the 21st Century* presents a list of "A New Generation of Powerful Systems" (p.75) as well as a list of "Examples of 20th Century Key Performance Indicators" (p.76) and "Examples of 21st Century Key Performance Indicators (p.77). These two lists of Key Performance Indicators (KPIs) are very different as follows:

20th Century KPIs	21st century KPIs
Administrative cost per FTE student	Ability to communicate 1-on-1 with faculty
Average class rank, incoming freshman	Access to global information network
Average HS GPA, incoming freshman	Access to unlimited library collections
Average test scores, incoming freshmen	Demonstrated value of the program
Campus crime rate	Flexible curriculum
Four-year graduation rate of students	Flexible payment options
Number of degrees awarded	Flexible schedule
Number of open access PCs	Free text search capability
Number of parking spaces	Lifelong learning support
Number of students in each major	Mastery of subject matter material
Student/faculty ratio	Network access from dorm room/home
Tuition dependence	Number of students with PCs
Tuition rate	Personal attention from faculty/mentors
Tuition revenue	Personalized learning systems available
	Simulation capability available

(Dolence and Norris, 1995, pp. 76-77

Rationale for Strategic Planning

What is the rationale for strategic planning as a planning process? Why plan for the future? An old proverb says "Planning for the future is the only planning worthwhile." There is no future in planning for the past. Planning in the present is gone before most planning can be done. William Shakespeare even had a few appropriate words which relate to strategic planning when he wrote, "What's past is prologue." John M. Bryson (1995) writing in *Strategic Planning for Public and Nonprofit Organizations* suggests that we need to understand the dynamics of strategic planning.

> The environments of public and nonprofit organizations have become not only increasingly uncertain in recent years but also more tightly interconnected; thus, changes anywhere reverberate unpredictably—and often chaotically and dangerously—throughout the society. This increased uncertainty and interconnectedness requires a threefold response from public and nonprofit organizations (and from communities as well). First, organizations must think strategically as never before. Second, ... translate their insights into effective strategies to cope with their changed circumstances. Third, ... develop the rationales necessary to lay the groundwork for adopting and implementing their strategies. Strategic planning can help leaders and managers ... think and act strategically (p.1).

Bryson further lists some of the reasons for the need of strategic planning is the events and trends of the past twenty years. These include but are not limited to the following: (a) Demographic changes, (b) the volatile global economy, (c) shifts in personal and societal values, (d) taxes and those indexes or limits related to them, (e) unfunded state and federal mandates, (f) shifts in funding by the state and federal governments, and (g) the increased role of the nonprofit sector (Bryson, 1995, p.3).

Bryson promotes the belief that "strategic thought and action" are more important than strategic planning and that planning should not be allowed to get in the way of the other two (p.2). He

further believes the strategic planning provides the following four benefits:

1. promotion of strategic thought and action
2. improved decision making...focusing...crucial issues and challenges
3. enhances organizational responsiveness and improved performance
4. benefits the organization's people (p.7)

Bryson also shares "what" strategic planning is *not.* It is *not* a panacea... *not* a substitute for strategic thinking and acting... *not* a substitute for leadership... ("some key decision makers and process champions must be committed to the strategic planning process"), and *not* synonymous with creating an organizational strategy (p.9).

In summary, strategic planning is here to stay. We have seen other techniques including cost-benefit analysis, zero-based budgeting, management by objectives (and/or results), Total Quality Management (TQM), reinvention, reorganization, and re-engineering. Most have come and gone. Perhaps their only legacy is that they have left us with a new way of approaching our changing paradigms. Bryson later shares that strategic planning will endure since it is more politically rational and builds upon the political decision-making process. (p.10). Bryson (p. 22) starts detailing the ten-step process for the remainder of his lengthy book. The ten steps are listed as follows:

1. Initiate and agree upon a strategic planning process.
2. Identify organizational mandates.
3. Clarify organizational mission and values.
4. Assess the organization's external and internal environments to identify strengths, weaknesses, opportunities, and threats.
5. Identify the strategic issues facing the organization.
6. Formulate strategies to manage these issues.
7. Review and adopt the strategic plan or plans.

8. Establish an effective organizational vision.
9. Develop an effective implementation process.
10. Reassess strategies and the strategic planning process (p.23).

Bryson, along with Farnum K. Alston, have put together a "workbook" entitled, *Creating and Implementing Your Strategic Plan* to accompany the text, *Strategic Planning for Public and Nonprofit Organizations*. Both of these are worth the reader's review and consideration.

Strategic Planning

What is strategic planning? How is it related to other planning processes? The answers to these questions depend solely on the author referenced or cited. It is important to remember that many things today are yesterday's thoughts with new words to make one believe one is dealing with a new set of concepts or processes. Strategic planning as defined by Bryson (1995) is that: "strategic planning should promote wise strategic thought and action on behalf of an organization and its key stakeholders" (p.10).

In contrast, long-range planning, as defined by Morrisey (1996), suggests that long-range planning is the middle stage of strategic planning that lies between the intuitive strategic thinking and the analytical tactical planning. It is the middle set of concepts of "The Planning Process Continuum." It has four major elements in key strategic areas, critical issue analysis, long-term objectives, and strategic action plans (pp.2-3). He supports the notion that strategic thinking builds the foundation for planning while long-range planning creates the strategic journey to tactical planning which produces the short- and long-term results.

Long-Term Versus Strategic Planning

We want to show the differences between long-range planning and strategic planning in a case study format that follows. The long-range approach will be detailed first. The common long-range planning process is a four-step process. The first step is monitoring. In this step one gathers together the data that is known about the

topic being planned. Many times this data is historical and demographic in the broadest sense.

An example is provided from the writer's home institution as follows: as the number of high school graduates changes (+ or -) so does the potential of those who choose to attend our higher education institution. One can follow the numbers from year to year of the number of high school seniors in comparison to the number of first-time freshmen to determine a percent of high school seniors who go to the university in the state. When historical data is utilized over a period of time to compute percentages, one can see there is a certain amount of stability in these percentages.

The second step in this process is forecasting. In this step one attempts to create scenarios about the future (or the long-range planning time frame) based upon the monitoring data developed in the first step. The planner can now project data with the information available. The number of enrolled high school senior students will become the forecast factor to start next year. If one goes a step further and the retention percentage stays the same, the number of students who will progress through the system that year will be either greater or lesser depending upon the direction of the change (+ or -). The effect from this data is long range. In the case cited, the numbers will be less based upon enrollment alone.

Once the monitoring and forecasting are done, the organization is now ready for step 3, the setting of goals. There are several places in our example where goals might be set. First, our goals must take into consideration the number of students in the pool of high school graduates as a "given." Should this demographic fact change in either direction, then our monitoring and forecasting would be wrong. Our goal here might be to raise the number of students we hope to recruit, thus a recruitment goal by the week, by the month, or by the semester. The recruitment goal may even be broken down further into quantitative sub-goals of number of freshman, number of transfers, number of international students, or number of out-of-staters for the desired data collecting period.

The fourth and last step in this process is implementing. This means that the long-range planning process is put into place in a static format. This long-range plan cannot be changed without going back and starting the process over from the beginning.

Let us now look at this same example if it were strategically planned (SP). The first step is scanning. Many times the data is historical, multi-year, and demographic in the broadest sense. The sample we are using is the number of high school graduates for any particular year and how they have eventually influenced the freshmen enrollment rate numbers as well as several other projectible outcomes. As the number of high school graduates changes (+ or -) so does the percent of the market total that choose to attend or we attempt to recruit. This portion of the total then changes with the number of high school students who elect to come to the college.

One of the advantages of a strategic plan is that it should be in a constant state of flux. The plan is dynamic. It can and should change as any one of the data factors change. Many people cannot deal with a changing plan. Dr. Ed Elliott, President of Central Missouri State University believes, "a strategic plan is always changing depending upon the change of any datum element." The data, in our example, has a diagonal track which becomes longitudinal data. This historical data then becomes the basis for the second step in the process.

The second step in this process is evaluation/ranking. Here the people involved in the process must determine in what order we are going to consider the scanned data. If the ultimate goal is to increase the number of college graduates, then our first rank will be to get a bigger share of the number of high school graduates available who meet our admission requirements. In this evaluation/ranking process we must remember that all these factors are inter-related. The ranks may change as the plan develops. The + and - make a big difference which will have an impact for many years depending upon their significance. Insignificant changes are with us longer than most people think they will be.

In the third step, forecasting, one attempts to create scenarios about the future (or the strategic planning time frame) based upon the monitoring data developed in the first step. The planner can now project data with as many variations as one considers realistic. What happens if the institution receives 0.1% more or less students from the high school pool of graduates. The number of enrolled stu-

dents change the number of students electing to attend. If one takes this example a step further then retention percentage stays the same, the number of students who will progress through the college years will be either greater or less depending upon the direction of the initial change (+ or -). The retention rate is a measure of those who return, regardless of the reason. The effect from this data is strategic due to the nature of this process.

Once the forecasting is done with a variety of scenarios in place, the organization is now ready for step 4, the setting of goals. There are several places in our example where goals might be set. First, our goals must watch to see that the pool of high school graduates remains as projected. Should this demographic fact change in either direction, then our monitoring and forecasting should reflect the change (either + or -). Our goal here might be to raise the number of students we hope to recruit, thus a recruitment goal by the week, by the month, or by the semester as we saw in the long-range planning example. The recruitment goal may even be broken down further into quantitative sub-goals by categories of number of freshman, number of transfers, number of international students, or number of out-of-state students for the desired data collecting period. Records of these periods then become data points or benchmarks for future strategic plans.

The fifth and last step in this process is monitoring. This means that the strategic plan is in place in a dynamic format. As any single data factor changes, so does the rest of the plan. At any point in time, the strategic plan can be assessed. BUT, remember the plan and its results are continually subject to dynamic change. Change can be either direction on any single datum fact change. As the data facts change, the process starts over again. Some data facts change daily, others change by the week, the month, the semester or any other desired time frame. A computer model with variable factors in it can show these changes automatically or be used to change projections as the data elements take on new characteristics. One can make the case for studying the sample provided by changing one or more factors and then predicting the new outcomes.

There are professionals who would suggest that merging long-range planning and strategic planning might follow a six-step model consisting of the following steps: (1) Scanning, (2) Evaluating issues and developments, (3) Forecasting, (4) Goal setting, (5) Implementation, and (6) Monitoring.

One might ask the question, "What do I need to know to make this process work and work to my advantage?" We must remember the changing nature of education in society. It has changed in many ways over the last 40 years. The baby boomers are now the working segment of our society. Less people are finishing high school by the traditional approach. The colleges/universities are experiencing a new clientele of non-traditional students who are putting new demands on the educational system from secondary school programs to junior/community colleges to the four-year college/university to the post-graduate institutions, both public and private.

Technology education puts together a strategic plan to change its way of doing business in the mid 1980s. More than ten years ago, the discipline made a move to leave the "shop concept" and move to the "technology" approach. This movement has met with varying degree of success depending upon the teacher, the individual school districts or even buildings, the respective state departments of education, as wellas, the teacher education institutions program. The success of technology depends upon all of these entities working together to produce a "technology teacher" who is certified to teach in their respective state. Other stakeholders are the school system that supports and finances the "technology laboratory" for the teacher and all students who elect to enroll or are required to take one or more technology courses. The concept of technology is going to be a part of our lives for the future.

Positioning a university/college/department is vital to the survival of the discipline and its related programs at all levels from elementary school through a Ph.D. in the study of technology. We have witnessed the failure and the survival of programs at all levels. There are still programs in existence today which are technologically minimal in nature while there are many programs out on the "leading edge" with technology. All of these depend upon the lead-

ership in the elementary, secondary, post-secondary, community college, and universities regarding the future of these programs. This is why it is so critical for the professional in technology education to be the leader or an active participant in the strategic planning process particularly as it affects their discipline. Most of the readers of this book are persons engaged in the technology discipline every day. We all need to step back, do an objective assessment of our role in strategic planning to make sure of our leadership or participant role. A friend of mine at an unnamed university recently shared with me his philosophy of his role in strategic planning. He was a recognized leader on his campus. When his administration wanted someone to head up the review of the universities' organization and structure (part of a university-wide strategic plan), my friend was chosen as the committee chairperson. Did technology survive? Sure, and my friend now has a much stronger position on his own campus among his peers and colleagues. No committee would realistically "reorganize out" the chair of the committee's school. A great "strategic" plan by this dean. It also pays to listen to what is happening on other campuses and why the changes are occurring.

Steps to Applying Strategic Planning

How to use strategic planning in education is the last question we need to answer. A strategic plan in education should consider the following elements in the process.

1. Implementing Environmental Scanning
   a. Learning the process
   b. Developing an organizational structure
   c. Selecting leaders
2. The Scanning Process
   a. Searching for information resources
   b. Selecting resources to scan
   c. Identifying criteria for scanning
   d. Scanning
   e. Categorizing the scanned resources

3. Developing a taxonomy—Types of Categories
   a. Social
   b. Technological
   c. Economic
   d. Legislative/regulatory
   e. Demographics
4. Evaluat.ng the Developments/Issues
   a. Probability-impact charts
   b. Impact Networks
   c. Methods of Forecasting
   d. Group Forecasting Techniques
   e. Scenarios

Summary

This chapter of the 1999 CTTE Yearbook, "The Professional's Role in Strategic Planning," brings together the current literature related to strategic planning with some help from long-range planning. Both of these concepts/processes have been detailed for the reader/practitioner. Examples of all concepts/processes of both types of planning are contained in the references:

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Chapter 14

Fostering a Professional Culture in Technology Education

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Chapter Fourteen is presented to establish the future for professionalism in all phases of technology education. This includes an overview of professionalism in pre-service education as well as throughout the technology educator's career. An additional topic includes the recruitment of students into technology teacher education programs as a continuing essential for the profession. The reader will be introduced to the characteristics of a profession, the need for professional status for technology educators, the dimensions of the professional culture within technology education, the role of pre- and in-service education, and related issues to the profession.

Dimensions of a Profession

The importance of professional development to technology education cannot be overstated when one reflects on the impact these educators will have on countless students, schools, communities, and organizations. Many writers have addressed the concepts of being a professional in various professions. The criteria outlined by Ritzer (1973) over two decades ago speaks directly to what it means to be a professional:

1. Possess a general systematic knowledge of the profession.
2. Have influence over others.
3. Show broad (community) rather than self-interests with an emphasis on symbolic not monetary rewards.

4. Hold membership in occupational associations, have obtained advanced education, and typically involve the existence of a sponsor.
5. Be recognized by the public that the individual is a professional.
6. Continue active involvement with the occupational field. (pp. 62-63)

Ritzer's criteria provides an excellent basis for the discussion of the need for professional status among technology educators. Throughout the remainder of this chapter the author will present the aspects of helping technology educators to develop professionally.

The need for a systematic knowledge of the profession is long-standing in all teaching areas including technology education. Today, all states require some type of certification or licensure for teaching. Some states also mandate the minimum of a bachelor's degree, and in some cases, a master's degree within a prescribed timeframe. All programs require the broad general education courses associated with college degrees, but each given field has specialized training in their disciplines as well as professional education coursework. In technology education this specialized training consists of a broad range of lab-based technology systems courses (i.e., manufacturing, construction, communication, etc). The result of this preparation is individuals who possess the special skills and knowledge required to provide instruction in technology education.

Ritzer's (1973) professionalism criteria concerning "influence over others" is applicable to technology educators because of their demonstrated technical knowledge and the sharing of this knowledge with their students. In addition, their technical skills many times make them the source for decisions concerning technological applications for the entire school system.

The third concept concerning the broad interests of the profession versus self-interests and symbolic—not monetary rewards is applicable to all educators, not just technology educators. Anyone who pursues a career in teaching is more motivated by values related to service to society and lifelong rewards rather than monetary

rewards. The technology educator clearly meets Ritzer's first three criteria of a professional, but three remain to be addressed.

Ritzer's (1973) fourth criterion relates that the professional should hold membership in occupational associations and have obtained an advanced education. Unfortunately many educators, technology educators included, do not participate in their professional organizations. This lack of participation is usually rationalized with arguments concerning cost and/or time. All teachers must understand that these activities are essential to their professional development. Many teachers do not pursue advanced education, whether degree oriented or for continuing education in general. Again the argument is often times the cost and time required. Currently many states have established continuing certification regulations that require teachers to accrue a given number of credit hours or Continuing Education Units (CEUs). There may be even further requirements developed in the future. The basic need is for teachers to internalize, during their training, the need to be active professionally.

The fifth criteria states that the individual needs to be recognized by the public as a professional. This issue cuts into the heart of the teaching field and society's perception of the profession. There is no doubt that certain educators are seen as professionals by the public (i.e., college professors, school administrators), but there is the feeling on the part of many that elementary and secondary teachers are not at the same level as most so-called professions. This may be due to the level of selectivity for entry or perhaps the salaries that are lower than most professions. The fact that teachers are unionized may also negatively impact this public view.

Ritzer's (1973) final criteria concerns active involvement with the occupational field. Many teachers take their roles as advocates for their disciplines very seriously and champion their cause to the local school and community. However, there are educators who fail to promote themselves or their area. The technology education field has some who do not see the need for such a role and their performance reflects the lack of professional development on their part. How can this kind of attitude be eliminated? The answer is to foster a professional culture that will discourage such an attitude.

There is no doubt about the need for professional status for technology educators as well as others in the education field. The perceived lack of professionalism has inhibited education over the last half century and needs to be addressed by educational professionals and society in general. It is obvious that this process must start with education and, in particular, the teachers. Technology educators must internalize the criteria of a profession and demonstrate their knowledge by their ongoing actions. Without this as a starting point, the field can never hope to be considered a profession.

This is not to say that there are not countless technology educators who exhibit all the traits of a professional. One solution could be to model these individuals and utilize them as mentors. The experience of these individuals may serve as the core of knowledge to be introduced into the professional education curriculum of technology education and as part of continuing education.

Developing a Professional Culture

The idea of a professional culture may seem a bit lofty, but upon review of fields considered to be professions, one observes that a specific professional culture does exist in each. The idea of culture here is taken from the *Merriam Webster Dictionary* to mean, "the art of developing by education and training" (Mish, 1994, p. 191). Any given society, sub-society, or in this case, professional field, has a set of beliefs and standards for performance at any given time. These standards will change over time and need to be continually revisited by those intending to impart this information. All professions have "codes of ethics," that are modes of accepted operation, and cores of knowledge and skills. The approach here is to identify such for technology education and ensure that they are included in pre- and in-service experiences.

Formal and informal experiences such as student teaching and in-service activities combine to convey the "culture" of the technology education profession to the practitioner. At issue is whether these experiences produce a professional technology educator. In recent years much of the discussion and development with areas that desire to emulate the traditional professions has been in the area of professional ethics. In most teacher education programs,

either a course in professional ethics has been created or a portion of a methods course has been set aside for this topic. A course or unit in ethics does not ensure a person will be ethical and act morally. These traits are developed and observed over a career and lifetime. What can be assumed is that this experience will focus attention on what the profession has established as proper modes of operation in given situations and can use these as benchmarks for their actions.

The National Education Association (NEA) created a Code of Ethics of the Education Profession in 1975. It has two major provisions with eight subparts each. The first major principle is "Commitment to the Student" and the second is "Commitment to the Profession" (Wagner, 1996, pp. 35-36). Space here does not permit a complete listing of the eight sub-points of each, but it will suffice to indicate that the list of do's and don'ts outlines students' rights and accepted behavior of teachers to each other and the profession.

The professional culture also reflects the philosophy of the field that evolves over time. Currently the International Technology Education Association (ITEA) serves as the largest professional organization associated with technology education and provides leadership in defining the foundational principles the profession is built upon. Similarly to the NEA, the ITEA has established "Standards of Conduct" for professional members of the technology teaching profession.

This Standards of Conduct for members of the ITEA has been adopted to promote and maintain the highest standards of association service, teaching, and personal conduct among its members. Adherence to these standards is expected from members of the association, and serves to assure public confidence in the integrity and service of technology educators. As a member of the International Technology Education Association, I pledge myself to:

- Strive for excellence in all aspects of technology teaching.
- Maintain the highest standard of personal and professional conduct.
- Actively promote and encourage the highest level of ethics within the technology teaching profession.

- Maintain loyalty to ITEA and pursue its objectives in ways that are consistent with the public interest.
- Recognize and discharge my responsibility and that of my employer to uphold all laws and regulations relating to policies and activities.
- Use only legal and ethical means in all professional activities.
- Serve all members of my profession impartially, provide no special privilege to any individual member.
- Accept no personal compensation or privilege with intent to influence ITEA's direction.
- Maintain the confidentiality of privileged information entrusted or known to me by virtue of my position or office.
- Refuse to engage in, or countenance, discrimination on the basis of race, gender, age, religion, national origin, sexual orientation, or disability.
- Always communicate association internal and external statements in a truthful and accurate manner.
- Cooperate with other educators for the advancement of technology education.
- Use every opportunity to improve public understanding of the role of technology education.

All professional cultures include a leadership facet. Leadership may take on many meanings depending on the situation. Leadership may be centered on an individual, an organization, or a profession. Within technology education one will find leadership being exercised at all levels, but as with all fields there are leadership issues not being addressed. Leaders need to be interested in creating new ways of achieving the goals of the organization and even in changing the goals. Therefore, leaders are change agents as opposed to administrators who work within the existing structure and procedures to continue the current status of the organization or profession.

The leadership dimension of technology education's professional culture may be observed at all levels of activity. One current prime example of leadership is the "Technology for All Americans" project which is funded by the National Science Foundation and the National Aeronautics and Space Administration and endorsed by the ITEA. This project has developed "A Rationale and Structure for the Study of Technology" and is developing standards for this study (ITEA, 1996). From this effort the professional culture moves in new directions, and the classroom teacher gleans new perspectives from it to lend to his or her program. In regard to the latter, Wenig (1995) reveals that leadership and teaching are closely related because "the principles and practices of leadership are directly related to the characteristics of master teachers" and "through an examination of the recently evolved definition and purpose of leadership, a similarity between master teachers and successful leaders is found" (pp. 509-510). Wenig also reports that "the secret to technology education's future success lies in its leaders and/or teachers taking advantage of the whole person" (p. 508).

Professionalism Via Pre-Service Education

Historically teacher education programs, which prepared teachers for technology education's forerunners (manual training, manual arts, industrial arts, and industrial technology) were singularly focused. They were found predominantly in public four-year institutions and were associated with colleges of education. In recent years these programs have expanded their missions to include non-teaching industrial management career paths. These may be broad, multi-technology system based, or they may focus on single technology systems such as manufacturing or construction. This change has led to a significant decline in the number of students preparing to teach technology. This coupled with the elimination of a number of teacher preparation programs across the country has led to a shortage of new teachers entering the field. There will be more discussion concerning this topic in a later section. The point here is that the professionalism of students in teacher education programs will not have the desired impact if there are few students enrolled.

The teacher education field is currently going through a transitional phase with several new paradigms being presented as well as an extensive accreditation/evaluation initiation. Such new models as the five-year master teacher approach, the mentor year, and the post-discipline-centered major plan are being introduced across the country. Change in teacher education is not new and these latest attempts to upgrade the preparation of teachers should have an impact on the professional culture in technology education.

The National Council for Accreditation of Teacher Education (NCATE) published new standards in 1995, which present a detailed, performance-based approach to teacher preparation. Many states, including this author's home state of Ohio, have adopted these standards for the licensure of their teachers (Ohio Department of Education, 1996, p. 1). The technology education field has worked closely with NCATE via the ITEA and the Council for Technology Teacher Education (CTTE) to establish discipline based standards. Many programs throughout the country have gone through the folio writing process for ITEA/CTTE/NCATE accreditation. In addition to the ITEA/CTTE/NCATE standards, the National Board for Professional Teaching Standards (NBPTS) recently created a standards document regarding technology education (1997). The impacts of these profession-wide and discipline-centered standards will be far-reaching.

It is obvious that teachers have special professional challenges in regard to their students and profession. The need to act ethically toward the students serves twofold. One, it sets the stage for ethical action by the student via example, and two, it provides for fair and just treatment of the students. One should not oversell this issue to the point of suggesting that teachers will establish the student's ethics because this is obviously a lifelong, individual process that begins with parental guidance.

The teacher education student comes to college with much of his or her ethical framework in place, and the goal of their preservice education in this regard can only be to address how the teacher accepts the ethical responsibilities of teaching. These include such basics as the responsibility to help students in their preparation for life and as examples to students of how to act eth-

ically. This latter may mean that teachers must be examples outside of school as well as inside. One does not stop being a professional at 3:45 p.m. The student preparing for a career in education must internalize the unique professional issues associated with their career. The technology teacher education program should endeavor to instill these professional ideals in their students.

Beyond the development of professional ethics, teachers in training should be guided through a learning process that will enable them to understand their special professional duties. According to Wagner (1996), these special professional duties include: (1) duty to the students, (2) duty to colleagues, (3) duty to the discipline, (4) duty to the school team, (5) duty to the profession, (6) duty to funding sources, (7) duty to parents, and (8) duty to community, (Table of Contents). Space here does not permit the detailed discussion of each of these, but several points should be made.

First and perhaps foremost, the teacher has the obligation to promote student learning and development. Technology teacher education institutions must identify individuals who have the drive and determination to promote the development of wisdom in their future students, recruit them for teaching, prepare them soundly, and provide opportunities for growth throughout their careers.

Teachers' duties toward one another include support of the right to academic freedom and the opportunity to succeed. Teachers in training need to be introduced to the ideals and obligations of academic freedom as well as collegiality. They must understand that they have the right to teach as they deem appropriate, but they are also part of an educational community.

The teachers' duty to the discipline is centered on the ideal that the given discipline has value to the students, community, and society. While disciplines evolve over time, the fact that they remain in the curriculum indicates that the community and society value them. The teacher's duty is to honor this value by staying abreast with changes in the discipline. This is especially true of technology teachers by the very nature of the dynamic field. Technology education has remained in America's schools for more than a century, but much has changed, and the technology teacher needs to be prepared to continue the evolution.

"A teacher's duty to the profession is not the same as the teacher's duty to colleagues" (Wagner, 1996, p. 17). Teachers need to realize that they are part of a profession that requires them to honor their duties through their actions on all fronts. No professional education would be complete without challenging teachers in training concerning the nobility of the profession.

This instruction must include introduction to professional organizations. The first level of introduction for the technology education student should be the Technology Education Collegiate Association (TECA) via an affiliated technology teacher preparation program. Included in the mission of TEAC is to teach professionalism by example to pre-service technology education teachers through participation in leadership activities.

The Technology Student Association (TSA) is an organization for elementary and secondary technology students. The TSA provides an avenue for activities that technology teachers utilize to help carry out the curricular and co-curricular goals of their programs. Local, state and national contests and competitive events such as the Metric 500 and bridge building contests along with professional and social events provide students with foundational experiences. Teacher education students need to be introduced to TSA as well as TECA and ITEA.

In-Service Professional Development

To this point, the discussion has centered on pre-service teacher training. However, it is obvious that all teachers, especially technology teachers, need to continually learn, develop skills, and refine teaching methods. This issue is stated strongly by Hargreaves and Fullan (1992):

> One way of providing teachers with "opportunities to teach" is to equip them with the knowledge and skills that will increase their ability to provide improved opportunities to learn for all their pupils. Deeper knowledge of and greater confidence in teaching their subject(s); developing better expertise in classroom management so that more time can be devoted to instruction; knowing how to teach mixed-abil-

> ity classes; being aware of and becoming proficient in new teaching strategies like cooperative learning or "whole language" approaches to learning; and becoming knowledgeable about and able to respond to the different learning styles of their pupils - attention to all these things can certainly help teachers increase their pupils' opportunities to learn. (p. 2)

The concern is not only for upgrading skills and knowledge about one's subject(s) but to continually develop and improve as a teacher throughout one's career. Just like medical professionals and lawyers are required to take part in continuing education, teacher standards are calling for the same. An example is Ohio's newly enacted Teacher Education and Licensure Standards (1996) that list Standard 3301-24-06 as:

> Professional development shall be required for continued licensure for all educators. It shall be guided by the learning needs of all students and the axiom that all students can learn. It shall include current theory on the learning needs of educators and shall incorporate a planned progression for improvement on a continuing basis (p. 19).

The recently developed NBPTS Vocational Education Standards Committee (1997) report on standards lists the following for professional development: "Reflective Practice - Accomplished vocational teachers regularly analyze, evaluate, and strengthen the effectiveness and quality of their practice through lifelong learning" (p. 57). The document goes on to outline the components of this lifelong learning as: "Evaluating Results and Seeking Input Systematically from a Variety of Sources, Reflecting on One's Own Point of View, and Continually Refining Practice Through Study and Self-Examination" (pp. 57-58). While these are lofty goals, they can be realized through many avenues. The following brief discussion will outline some current methods.

While the rationale for continuing professional development is powerful, the implementation is difficult. Teachers find that they struggle just to keep up with the daily challenges of the classroom

and when faced with opportunities for growth and development they balk. This is especially true if the opportunities are "on a top-down basis by 'experts' from outside their own schools" (Hargreaves & Ryan, 1996, p. 3). When experts are brought in by the administration, the teachers do not have ownership and may resist such efforts. If teachers choose to go outside the organization for expert knowledge on their own or they "home-grow" the process, they are much more likely to be actively engaged. Even if teachers are "forced" to seek development activities in the name of teacher licensure standards, they are more likely to benefit from ones that they selected versus those brought to them by the powers above. Having made this argument it is openly accepted that much of ongoing development activity is the top-down type, and it can be argued that "something is better than nothing."

One method being suggested as an improvement over the typical expert-outside-in technique is the teacher study group. According to Cramer, Hurst, and Wilson (1996), "a teacher study group is a collaborative group organized and sustained by teachers to help them strengthen their professional development in areas of common interest" (p. 7). The authors go on to say, "With professional development increasingly emphasized at all levels, teacher study groups provide an important structure for gaining autonomy and a major means for growing professionally while building communities of learners" (p. 7).

The authors outline how study groups benefit each individual teacher in their development as well as the whole group. The study groups may be inside a given school across subject areas, within subject areas, or include individuals from several schools. Cramer, Hunt, and Wilson (1996) identify a four-stage cycle to the study group process: goal identification, exploration, synthesis and application, and evolution (p. 28). Study groups can include collaborative learning groups, administrators' study groups, computer-connected groups, staff development groups, teacher-initiated student study groups, and teacher study groups outside the school (pp. 29-34). Space here will not allow elaboration on each, but in general they all involve teachers and/or administration and/or students in self-motivated efforts to improve the teaching-learning process.

When one looks at technology education, it is evident that the population of teachers is mature, and the pedagogy of the field has changed in the evolution from industrial arts to technology education. These facts present a special challenge regarding the need for the professional development of technology teachers. These issues have not gone unnoticed by the ITEA (1996) which recently drafted a professional development plan, "directed at the need to define the role of the technology education classroom teacher in the dynamic field of study commonly known as Technology Education" (p. 1). The ITEA's *Professional Development Plan* (1996) document's overview goes on to state:

> Technology Education is about the changing role of the teacher, moving our professionals into the capacity of facilitator, and empowering classroom level practitioners with the skills and organizational behavior necessary to make important decisions about curriculum, program financing, and professional growth (p. 1).

The ITEA is also proposing a Center to Advance Teaching Technology and Science (CATTS) to "provide high quality professional development support for teaching and learning technology and science..." (1997, p. 1).

Recruitment of Technology Teachers

The shortage of teacher education students must be addressed or all the discussion of professional development in pre-service will be fruitless. *The Technology Teacher* for September 1997 reports on a study of the shortage and the future supply and demand of technology teachers throughout the United States. It reports that the year 2001 will need over 13,000 technology teachers while the number of graduates continues to decline (Weston, 1997, pp. 7-9).

This report is the latest of several over the past few years, which identifies the teacher shortage problem. This is not a new problem to this field. Many older readers can recall the shortages of the nineteen-sixties and seventies and the various programs that were initiated to deal with them. This writer's dissertation in 1981 dealt with

the recruitment of teacher education students into Ohio's eight teacher education programs. The eight Ohio programs enrolled 555 teacher education students at that time (Devier, 1981, p. 74) while the four remaining programs in 1996 graduated a total of 73 (Dennis, 1996, pp. 44-46). Volk (1997) points out that the number of persons actually obtaining teacher certification through alternative routes has not been ascertained. While it must be assumed that this is the temporary solution, the projections are so alarming that it is doubtful this solution can come close to meeting the future needs. Weston reported that Ohio's need for teachers in 2001 will be 250, and there is no evidence that anywhere near this number entered in the fall of 1997.

As identified earlier, the teacher recruitment problem has been predicted and reported over the past several years. Volk (1993), after a review of 1970 through 1990 *Industrial Teacher Education Directories*, reported that the number of universities offering IA/TE programs had decreased, and that the number of graduates prepared to enter teaching had decreased (p. 54, 1993). Volk (1997) more recently reported the continued decline since 1990 (p. 68).

There are at least two possible solutions to the shortage of teachers. One is the recruitment of more students into teacher education programs and the other is through some type of alternative entry into the profession. A quick review of each possibility follows.

The recruitment of students for technology teacher education has been studied by several authors over the past quarter century or more. This author completed such a study concerning Ohio's teacher education programs in 1981. It was based on previous studies by Aagard (1975), Carr (1979), Craft (1979), Earhart (1959), Edmunds (1979), Foley (1967), Goto (1977), Jenkins (1975), and Ressler (1966). Space here does not permit a complete review of this study but a brief outline follows.

The typical Ohio teacher education major was male between 18 and 22 who had taken industrial arts in secondary school and had about a 50-50 chance of having entered college to be a teacher. The recruitment efforts of the institutions were limited with college personnel contacts, and high school teachers being ranked as the

most effective methods in use. Approximately fifty percent of the teacher education students did not decide on their major until they were already in college and in their case personal interests and hobbies and secondary school industrial arts courses were the most influential selective reasons for becoming a teacher (Devier, 1981, pp. 136-138). From this data it is obvious that only one-half the mostly-male students came to college to be teachers so recruitment efforts would need to address a broader population.

In 1993, Daugherty and Boser, outlined the following recruitment activities:

1. Develop collaboration between universities and high schools, and business and industry.
2. Conduct studies of disciplines that are successful at recruiting.
3. Target Technology Students Association chapters (TSA) as a potential source of teachers. There are 15,000 TSA graduates annually who already have a demonstrated interest in technology.
4. Develop a comprehensive system for providing information to students who are interested in teaching as a career and follow up on those students. (p. 32)

The recruitment of traditional students into technology teacher education programs must begin with the secondary school teachers and their influence. The college programs must work with these teachers to identify potential students and steer them toward the field. This effort can serve to attract more traditional students but not non-traditional such as college prep females and other minorities. These populations will require new recruitment techniques both at the secondary level and within the college general studies population. The development of highly creative videos and websites will help to attract students who heretofore have not been aware of technology education. On college campuses that have teacher education programs, special general education courses need to be offered which will attract students from across campus.

Even if recruitment efforts yielded many pre-service students, there would still be a considerable shortage of technology teachers

in the short term since it takes four to five years for a student to go through a technology teacher education program. One area of possible relief is via alternative certification. Young-Hawkins (1996) discussed this issue and outlined the differences between teacher preparation programs and alternative teacher certification programs. The former provides an alternative to traditional teacher education without altering standards. Alternative teacher certification reduces requirements and provides a shortcut to teacher certification (Education Standards Commission, 1988; Young-Hawkins, 1996, p. 27). Young-Hawkins reviewed the current state of affairs of alternative certification and wrote, "It is incumbent upon technology teacher education programs to incorporate high quality alternative programs for non-traditional teacher certification" (p. 30). The creation of alternative methods of certification presents the profession with new avenues to solve the shortage of technology.

The Education Commission of the States (ECS) recently published a "Perspective on Investing in Quality Teaching" which outlined one area of possible teacher recruitment as mid-career recruitment. Darling-Hammond and Rustique-Forrester (1997) stated that the "untapped reservoir of potential teachers can be found in downsizing corporation, military and government retirees, and teacher aides already in the schools" (p. 3). They go on to indicate that "high-quality post-baccalaureate programs for preparing mid-career entrants have been created at a number of colleges. Others have developed agreements with colleges to assist paraprofessionals in completing teacher preparation and becoming certified" (p. 3). Techniques such as these will need to be pursued by technology education to help alleviate the shortage problem.

Summary

The purpose of this chapter was to outline the various issues concerning the creation of a professional culture for technology education. An attempt was made to define profession, professional, and professionalism as well as what a professional culture entails. The criteria of a profession were outlined in relation to technology education. The leadership dimensions of technology education were provided as they related to professionalism.

The pre-service and in-service aspects of professional development were discussed at length. Accreditation, new models of teacher preparation, national and state standards, codes of ethics, professional organizations, and related pre-service topics were outlined. In-service professional development was reviewed. Various methods of providing teachers with opportunities to upgrade skills and knowledge as well as the national and profession-based standards were presented.

The final section of this chapter reviewed issues related to the technology education teacher shortage. The decline in teacher education student numbers along with the increasing demand was depicted followed by possible solutions. These included increased recruitment into traditional programs as well as alternative techniques.

The professional status of technology education is not in question, only how the profession will convey its professionalism.

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