

***A Review of Technology , Curriculum, and Professional Development: Adapting Schools to Meet the Needs of Students With Disabilities* by John Woodward and Larry Cuban.**

Guest Reviewer: Teresa Nelson-Graham

The growth of technology in the 1990's was phenomenal. How do schools keep up with the rapid changes? Are they prepared to educate students for the technology of the 21st Century? Do schools adapt technology to include students with special needs? What part do teachers play? In this book review, guest columnist Teresa Nelson-Graham described how the authors and editors of *Technology, Curriculum and Professional Development : Adapting Schools to meet the needs of students with disabilities*, addressed these questions. Editors of the book, John Woodward and Larry Cuban have produced a thought provoking publication on the implementation of technology to meet the needs of students with disabilities.

Woodward, J., & Cuban, L., (Eds.) (2001). Technology, curriculum and professional development: Adapting schools to meet the needs of students with disabilities. Thousand Oaks, California: Corwin Press, Inc.

By titling Chapter 1, *No Easy Answer*, the authors, John Woodward, Deborah Gallagher and Herbert Reith, suggested their bias regarding the problem of instructional effectiveness and technology for students with disabilities. After reviewing current and past research on the use of technology in special education, they concluded that there are "no simple answers to the question of instructional effectiveness." They felt that practitioners' perspectives do not always match the perspectives of developers and researchers. Research has not mandated how technology is adopted in the classroom setting.

Bonnie Todis, author of Chapter 2, *Implementing AAC Technology in the Classroom for Students With Severe and Multiple Disabilities*, discovered that the increasing presence of technology in our society has sparked interest in addressing the technological needs of those with severe disabilities. She found that there was a tendency to regard technology as a treatment for persons with severe disabilities rather than as an accommodation. Due to the rapid advances in

technology, teachers believed “there must be something out there” that would make it possible for children with severe needs to communicate. General technology has been driven by market forces, and advances have been rapid. Unfortunately, that has not been the case with alternative and augmentative communication (AAC) devices. Although technology access, speed and interface design have improved, the technology still focuses attention on the device rather than the person. Therefore, persons with severe communication disorders and their families continue to use what is available and deal with the intrusive issues of the device.

In Chapter 3 Cynthia Okolo and Ralph Ferretti introduced *Technology-Supported, Project-Based Learning in the Social Studies* as a solution to using technology in inclusive settings. The authors presented an ideological history of citizenship education and project-based learning. In the Social Studies Project, the students' task was to prepare a multimedia presentation on a related topic. The students worked in heterogeneous ability groups. Okolo and Ferretti concluded that the project-based investigations produced gains in student learning.

In Chapter 4, Charles Greenwood, Liang-Shye Hou, Joseph Delquadri, Barbara Terry and Carmen Arreaga-Mayer discussed the University of Kansas' *Juniper Gardens Children's Project, a Class Wide Peer Tutoring Program*. The project consisted of three decades of collaboration between the community, a school district and the University of Kansas in Northeast Kansas City, Kansas. The researchers presented the problems and challenges they encountered over the span of thirty years. The authors included a variety of charts, tables and graphs illustrating the multimedia instructional and data management materials that evolved during the project. In the final discussion, the authors felt that the link between technology, inclusion, and existing effective practice of collaboration was only applied to one elementary school building. They discussed possibilities of how the project would be used by classroom teachers once the researchers leave the setting.

Judith Zorfass of the Education Development Center, Inc. (EDC), Newton, MA presented *Cases of Make it Happen* in Chapter 5 as a way for *Sustaining a Curriculum Innovation*. The EDC developed an inter-disciplinary, thematic, inquiry-based unit called I-Search to integrate

technology into the curriculum. Phases II-IV of the I-Search Process were based on the work of Ken Macrorie (1998). The three components of the *Make It Happen!* approach included: (a) *Professional Development*, in which teachers design and implement units, (b) *Leadership*, in which teachers receive support from teams, and (c) *Scale-Up* in which projects are disseminated and showcased. Zorfass discussed three case studies that illustrated this approach and the three phases. In order to sustain the model, the Lowell, MA, school district showcased the curriculum in the spring of 1994 after the 14 pioneer teams finished implementing their units (Zorfass, 1994). The showcase resulted in the addition of 23 teams. The findings of the project revealed that the teams moved through the developmental progression to gain reflective discourse rather than just develop routine practice. The EDC continued to study models of curriculum integration for students with disabilities through Pathways for Learning (1994-97) and Project ASSIST (1996-99), programs funded by Office of Special Education Programs (OSEP).

In Chapter 6, *Understand Teachers' Beliefs, Plans, and Decisions*, Charles MacArthur discussed the role of teachers as rational decision makers and described how technology is implemented by special education teachers. MacArthur et. al. (1985) surveyed special education teachers' use of computers. From that initial group MacArthur and Malouf (1991) studied the case of four teachers. From the original studies, MacArthur reexamined the data in the context of today's technology explosion. With more than half the nation's classrooms connected to the Web and an average of one computer for every 5.7 children ("Technology counts '99," 1999) the need for technology implementation is essential. MacArthur concluded that "staff development for any innovation, needs to be responsive to the complexities of teachers' professional lives and the constraints they face in resources, expertise, and instructional planning time." MacArthur stated that technology integration is only a component of larger instructional models that are needed to meet educational goals. Staff development should be long term and provide teachers time and support for the successful implementation of technological innovations in the curriculum.

Larry Cuban explored three categories of teachers and their use of information technologies in Chapter 7, *Why Are Most Teachers Infrequent and Restrained Users of Computers In Their Classrooms?* First, Cuban described:

1. *Serious users*: the ones who started using computers back in the 1980's and took courses in BASIC in their spare time:
2. *Occasional users*: the ones who after much prodding, took a beginners course and, finally broke down and bought their own computer.
3. *Non-users*: the ones who used a computer under protest and usually asked the "techie" in their class to be the teacher's helper.

Today, even the *non-users*, have moved to being an *occasional user*. In considering how teachers move to the category of serious users, Cuban reviewed how the computers have been used. He differentiated between computer-assisted instruction (CAI) when the computer is used for drill and practice and computer-managed instruction (CMI) where the computer is used as a diagnostic tool. Cuban also described a third category as computer-enhanced instruction (CEI) for programs that provided open-ended instruction to supports a particular lesson or unit. Cuban found that general education teachers and senior high students used computers primarily for word processing and drill and practice. A similar pattern was found among special educators (Cosden & Lieber, 1986; Reith, Bahr, Okolo, Polsgrove, & Eckert, 1988) even though they expressed belief in the advertised benefits of computers to enhance instruction (MacArthur, et al., 1991). Cuban explained the influence of the school and district culture on teachers ability to innovate and sustain change. Given his explanations, the increased quality use of technologies will take decades and result in a hybrid of models. Secondly, Cuban stated that availability is insufficient to convert *non-users* into *serious users*. Policymakers and administrators must listen to and hear what teachers request related to technology. In addition, Cuban felt that technology can be used to approach different learning styles and diversity. Finally, Cuban explained that that information technologies have entered the general education classrooms very slowly over

the past two decades and stated that we need to analyze why there are differences in implementation rates.

The inclusion of technology into the curriculum has depended on professional development and Edward Blackhurst examined issues on *Designing Technology Professional Development Programs* in Chapter 8. Competency-based teacher education (CBTE) was established to improve schools by creating quality teacher preparation programs based on the identification of competencies. In 1998 the Council for Exceptional Children adopted international competency-based standards for special educators. In his chapter Blackhurst provided a guide to designing technology professional development programs. He stated that there are still many unanswered questions on the role of technology in special education and its professional development instructional delivery model. Blackhurst felt we should have definitive answers for questions regarding the technology and skills needed by special education professionals.

Those who are responsible for designing and implementing professional development programs need “to make informed decisions based on empirical evidence”.

There has been little research on the links between professional development, classroom practices and the progress of students (Greenwood, 1998). In chapter 9, *The Construction of Knowledge in a Collaborative Community*, Carol Englert and Yong Zhao shared their reflections on three collaborative projects related to these interconnections. The Early Literacy Project, (ELP) a collaboration between researchers and four teachers, involved the construction of a literacy curriculum for students with mild disabilities. The collaborative process found that (a) teacher change was long term, (b) complex interventions required time to learn, (c) learning followed personal interests, (d) theoretical and practical knowledge fueled learning, (e) curriculum changes needed to be calibrated to students, and (f) student outcomes sustained teachers' efforts.

In the second project, Literacy Environments for Accelerated Progress (LEAP), two new teachers members were added to the original group of ELP teachers. The researchers wanted to know whether the collaborative and constructive group efforts could be sustained over 4 years.

The areas they explored were (a) positive stance to learning, (b) positive stance to risk taking, (c) open stance to change, and (d) acceptance of responsibility in contributing to the community membership. The LEAP teachers and researcher worked collaboratively as expected. The lessons they learned were:

1. The gap between research and practice was lessened through Teacher and Researcher Equality.
2. Teacher Knowledge and Actions resulted in “doing literacy in different ways”.
3. Teachers departed from their familiar ways of teaching literacy.
4. Collaboration and Idea Generation remained key components for the new and returning teachers who transformed their teaching practices in order to achieve literacy goals.
5. The most experienced project teachers internalized the view of teaching and learning as an interactive process that required lifelong learning.

The third and final collaborative project used the LEAP curricula approach and the Web. The lessons learned in this project complemented the findings of the first two (a) collaboration and development of innovations can be sustained, (b) innovations, conversation, and ownership remained keys to successful staff development, and (c) successful implementation of curricular innovations began at the entry-level of the teacher’s knowledge. After a review of the case studies, Englert and Zhao found that the professional development process was essential to curricular implementation and student achievement. Just as we differentiate learning for students to accommodate different learning styles and knowledge levels, we must vary the levels of discourse knowledge among teachers.

The team model and collaborative process are not new. Andrew Halpern and Michael Benz explored *The Rise and Fall of the Community Transition Team Model* in Chapter 10. They presented the community transition team model (CTTM) that began in 1985. The program represented a *systems-change* model for the transition of students with special needs into the community after exiting school. The team was composed of persons with disabilities and their families, school personnel, adult agency personnel and members of the community. The process

began with a statewide survey of special education and transition programs in Oregon. Five broad areas were identified: (a) curriculum and instruction, (b) coordination and mainstreaming of instruction, (c) transition services, (d) documentation of student outcomes and (e) comprehensive and adequate adult services. These five identified needs served as the basis for the model's standards. The team wanted to ensure that even though the framework was used state wide, they would retain local control. They also felt the model needed to involve a developmental process for change and the stakeholders' level of awareness needed to be kept in perspective. The team identified the procedures for implementing the model as: team building, needs assessment, program planning, and program implementation/evaluation. As with the other models highlighted throughout the book, the on-going learning process proved to be essential. Systems changed slowly through difficult process. The author's personal experience and research review suggested that sustainability of systems change needed the following conditions:

1. A carefully designed innovation that addressed a problem of concern to key state and local stakeholders.
2. Adequate and dependable financial and personnel resources available to implement the innovation.
3. Innovations supported by an external structure that legitimized the efforts of local users.
4. An evolving sense of ownership for the innovation signifying a respect for the values that underlied the innovation.
5. Sufficient time available for a rigorous process of implementation, evaluation, and modification.

Overall, the implementation of technology into the curriculum necessitated participation of teachers in professional development.

Marleen Pugach and Cynthia Warger addressed "*How Does Technology Support a Special Education Agenda?*" in Chapter 11. IDEA '97 changed how educators viewed technology. In the past assistive technology (AT) was viewed as a rehabilitation tool. With

the reauthorization of IDEA, every student with an individualized education plan (IEP) must be considered for AT. Adaptations such as word processors and spell checkers that were used to remediate difficulties with written expression have now moved into the mainstream classroom. The CAI tools that were used for basic skills can be examined for accommodations for other curricular needs? Woodard and Baxter (1997) described teachers using a spreadsheet application to help students with difficulties reading story problems and performing labor intensive calculations. The goal focused on the students use of higher level thinking skills. This accommodation allowed students with disabilities to work with their non-disabled peers. Technology can be used as a tool to provide individualization within a diversified curriculum . In Chapter 4, Greenwood, et. al., introduced class wide peer tutoring (CWPT) as a natural support for students with disabilities. Systems change was needed in order to integrate technology successfully into the curriculum at more than the drill and practice/word processor level. Teachers can then address the needs of diverse learners, not only students with special needs, but the general education population as well. In order for teachers to address these needs, professional development was essential. The authors felt that we need to use technology as a tool to support teaching and learning. As special educators work with general educators to link individual accommodations to curriculum outcomes, technology use will be maximized.

Technology, Curriculum and Professional Development; *Adapting Schools to Meet The Needs of Students With Disabilities* illustrated concrete ways to meet the needs of diverse learners. The chapters in the book chronicled the history of special education technology. Professional development was the key to the successful implementation of technology into the curriculum. Not just for special educators, this book provides a blueprint to successful professional development and the inclusion of technology into the curriculum. This reader-friendly book provided concrete examples of technology, curriculum, and professional development; and should be an essential part of every educator's professional library. *Technology, curriculum and professional development: Adapting schools to meet the needs of*

students with disabilities by Woodward and Cuban is available from Corwin Press, Inc. (ISBN # 0-7619-7743-0).

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