

## **Keyboarding, Typing, and Computer Skills for Elementary Students**

Prepared by Victor Montemurro for Dr. Veronica McDermott

The majority of research regarding typing, or keyboarding, and young children, occurred when computers began to flow into classrooms during the eighties. Computers were envisioned then as an efficient way for students to drill and practice, or to word process. While little thought was given to unexpected outcomes of computers in the classroom, a debate developed regarding children using computers and keyboards. This discussion ranged from the traditional approach in which students were expected to know how to type before they could use the computer, to a more expansive view which said that students didn't need typing at all to use a computer.

A search of the ERIC database reveals two 1985 research articles that discuss the need for the development of keyboarding skills at the elementary level, and issues to be addressed when implementing a keyboarding curricula, and program considerations. Researchers studied fourth grade classes over an eight week period of a 32-session elementary keyboarding pilot program, and then wrote *A Research Study to Determine the Effects of Early Keyboard Use upon Student Development in Occupational Keyboarding; Final Report of Research* (Warwood, Byrdeen, and others, 1985). They concluded that it is feasible to teach keyboarding skills to elementary students, and they can learn these skills well, but that they need continuous practice to maintain the newly learned skills.

In the late eighties, Apple Computer Company began to explore the effects of the heavy influx of computers in education. Apple Classrooms of Tomorrow (ACOT) provided computers to teachers and students and researched the effects of technology on teaching and learning. The early nineties brought research by the Apple Company about language acquisition and writing and its relationship to keyboarding. Generally speaking, ACOT research concluded that children write more freely and willingly when using word processing.

Keyboarding began to be viewed as an essential skill for elementary students for reasons other than originally perceived as the way to drill and practice. If students could learn to acquire language and writing skills, then the keyboard must be learned to facilitate that process. In *Expanding Horizons in Business Education*, Rowena Russell states, "It is essential that keyboarding instruction be included in the elementary school curriculum. Research confirms that students who have become proficient in touch keyboarding complete work faster and are more efficient in their use of the keyboard" (Russell, 1994). In the "Journal of Research on Computing in Education," Sormunen and Wickersham found that "students can learn language arts while developing keyboarding skills at least as effectively as students who learn language arts using only traditional paper, pencil, and/or oral methods." (1991)

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Other researchers concluded (excerpt below from *Apple K-12 Effectiveness Reports*; <http://www.apple.com/education/k12/leadership/effect1.html>):

- Children quickly learn to use word processing software and often do better writing than with pencil and paper.
- Using word processing results in fewer grammar, punctuation, and capitalization errors, especially among students with low abilities.
- Authentic writing with computers is an effective way of learning language mechanics. When combined with the use of telecommunications, such as a cooperative development project, improvements show up on both holistic assessments and standardized tests.
- When children use a computer to study spelling, they are more engaged and, as a result, achieve higher spelling scores.
- When teachers learn about computers, this new knowledge helps their students' writing improve, mainly because they give students more opportunity to write on the computer.

A recent research study published in the *Early Childhood Education Journal* (v27 no4 summer 2000. pp243-50), suggests that young children from diverse populations can be taught fundamental computer skills effectively through a structured training program. After an in depth review of the significant literature pertaining to children and computers, the authors, Parette, Hourcade, and Heiple, discuss a specific, structured program named the Keyboard Kids Curriculum.

Teachers have an obligation to use technology, especially computers and software, to benefit children. Computers help children become more efficient at accessing, transmitting, and using information. Children differ in their learning capacity and learning style, some more greatly than others so as to be classified developmentally disabled or learning disabled. Due to learning problems, differences in style and capacity, computer skills may not be learned by casual observation or discovery. Specifically and carefully designed instruction, hands-on opportunities, and direct instruction by a teacher are the best ways to teach children about computers. Once learned, computer skills provide a tremendous ability to confidently access the computer as a mind-tool for future learning.

Computers and software in education are changing fundamental educational philosophy, influencing changes in literacy and writing, and changing the accessibility of information resources. Children develop competence and autonomy by taking a more

active role in their learning. Computers in the classroom encourage interactivity often placing the teacher in the role of facilitator of learning. Constructivistic perspectives often emerge in classrooms that involve effective use of the computer. Students using the computer as a writing tool often begin to develop as writers. Once a child has used spell and grammar check to identify common errors, the analysis and correction of errors may become internalized and automatic. Gradually students become increasingly independent and efficient writers who, upon viewing their writing as printed text similar to their books, may now begin to view themselves as writers.

In the article “The Importance of Structured Computer Experiences for Young Children With and Without Disabilities,” authors Parette, Hourcade, Heiple, offer quick references to the literature that demonstrate the positive aspects of computers in education. These research-based conclusions include:

- Increased social and emotional growth
- Enhanced communication skills
- Retention of skills related to technology usage
- Greater inclusion of students with special needs
- Support for and enhancement of children’s creativity, self-esteem, and cooperative learning
- Development of a fearless, joyful attitude toward all learning

Regarding children with disabilities, the authors indicate that use of the computer provides the benefit of frequent and consistent positive reinforcement. Also noted are benefits toward the goals of inclusion: opportunities for interaction with peers in group activities and increased student ability to work independently. The authors summarize Hutinger (1993, 1998): “Children with disabilities are often able to do more with a computer than in more traditional classroom activities.”

Howard P. Parette of Southeast Missouri State University, one of the authors of the article “The Importance of Structured Computer Experiences for Young Children With and Without Disabilities,” from *Early Childhood Education Journal* (v27 no4 summer 2000. pp243-50), developed and field- tested a prototype computer training curriculum in 1993. To develop the Keyboard Kids curriculum, extensive research and literature review, software evaluation, development of lessons, resulted in the current program. The Keyboard Kids curriculum includes introductory sections (a framework for teachers that includes literature review and instructions), adaptations section (hardware and software adaptations for children with various learning and developmental disabilities), and an assessment portion which includes the Computer Skills Testing Inventory. The Computer Skills Lesson Plans include instructional strategies for teaching each of the 47 specific computer skills such as number one: “Identify diskette;” and number 41: Use delete key for word processing.” Parette describes his research

methodology and data collection, field-testing and assessment using three groups of young children ranging in age from 3 to 4-year-olds, 4 to 5-year-olds and kindergartners.

Several implications of the study, quoted from the article, are below:

- "... the results strongly suggest that a structured computer skills training approach using the Keyboard Kids Curriculum is effective in teaching fundamental computer skills to young children with and without disabilities. These skills will only become more important as computers play an increasingly significant role in schools and society."
- "The use of information technologies, including computers and software, has the potential for a profound effect on the manner in which children acquire skills."
- "... children and adults now have at their fingertips a powerful technology able to present information in enlarged, animated, and auditory formats."
- "This development dovetails smoothly with the contemporary trend in education on meeting the learning styles of all children."
- "Through the use of computers for learning, young children can see text and pictures on a screen; can hear auditory information including language, music, and sounds, and can manipulate objects on a screen via a mouse or joystick. Thus computers offer the potential to present information, and respond to a child's input, in the modality that is most powerful for the child."

The issue presented here isn't whether or not educators should allow for the teaching of typing or keyboarding in the primary grades, but why this teaching isn't occurring more consistently and regularly in a structured skill specific program. More specifically, a broad range of computer skills including keyboarding should be taught to young children, reinforced with regular practice and supported by developmentally appropriate and educationally sound learning experiences.