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Integrating Technology into the Teaching and Learning of Dance

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Computer integration has been mandated on a national level within all subjects. But teachers' readiness in operating and merging technology into the curriculum is a concern. There is widespread interest in educational technology's ability to facilitate teaching and learning, yet many issues concerning its implementation remain unclear and deserve careful examination. This article will discuss the complex issues surrounding the integration of technology in the dance classroom and provide examples of how the Discover Dance¹ CD-ROM can be used to facilitate this integration.

While the investment in educational technology is expansive, the use of telecommunication through the Internet provides highways to the world. Such access to a global dance community heightens students' perception of dance in their external environment and broadens their dance community. Internet resources originate new strategies for learning while acting to strengthen the global community and informing students' growing definition of dance education.

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Autonomy

Instructional technology (IT) can address the needs of multiple populations at once, allowing students to progress at different rates without pressure for completion based on time. For those students who seek further information, IT provides the ability to revisit material on their own. While using IT, students receive immediate feedback and are motivated to learn. Empowered with choices, IT provides individualized instruction furnishing the "patience on the computer; tailored to one-on-one learning; instant feedback; absence of other students that could slow the learning."²

Autonomy is established in the Discover Dance CD-ROM through the navigation structure that provides students with independence and choice. While deciding which choreographic elements to choose in the "Make a Dance" section, a student may reflect back on one of the "Elements of Dance" to review different means of support (lean, lift, carry, and catch) (Fig. 1A). Or students may wish to make their own printable dance score and decide to refer back to the Motif Writing section for symbol identification (Fig. 1B). Interactive links allow students to cross reference information among sections dealing with Motif Writing, Elements of Dance, and personal reflections in the "Dance Journal" section (Fig. 1C).

Access

Technology in dance education has provided access beyond traditional videotapes and books. In addition to the vast amounts of readily ac-

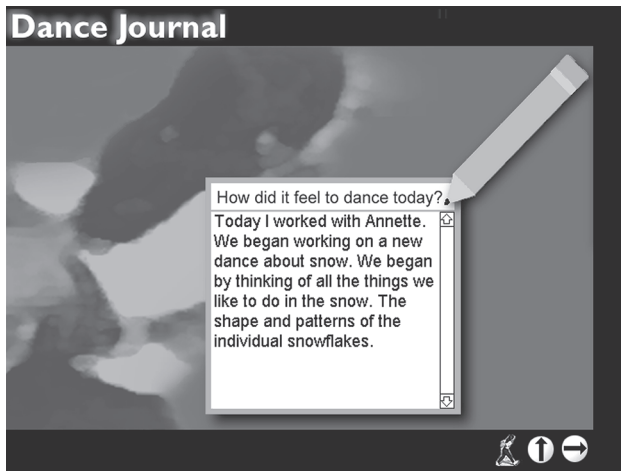
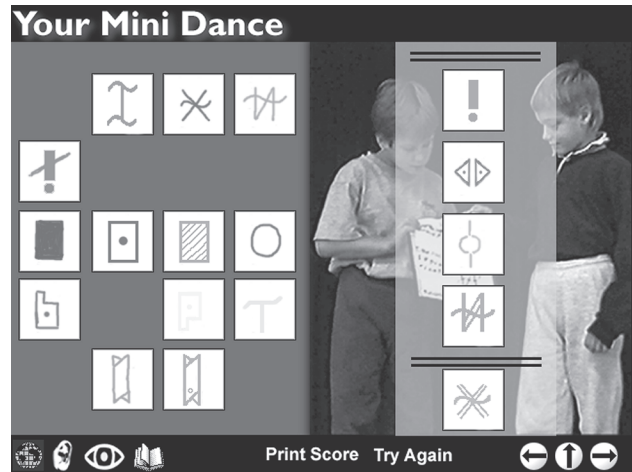
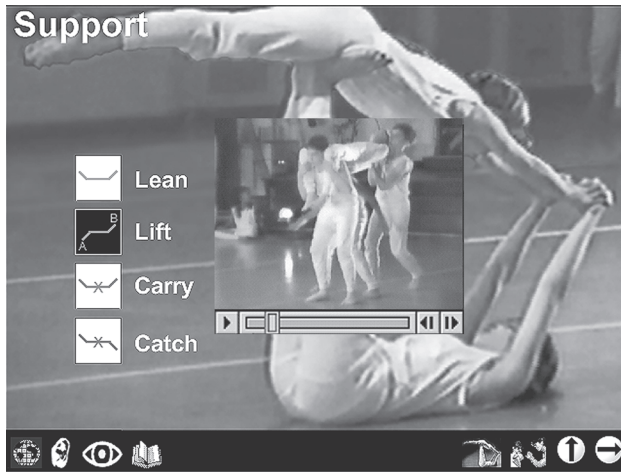


Figure 1 The Discover Dance digital library promotes student autonomy and choice. Left to right: **A**, The Element of Dance movement concept lift from the category support as seen in the CD-ROM. Each movement concept is represented through text, motif symbol, audio, and video. **B**, Mini Dance promotes motif writing for dance invention and documentation. **C**, Reflective evaluation and personal history in dance are saved in the student's Dance Journal.

cessible information available through CD-ROM encyclopedias, technology has provided access to computer-mediated communication. Not only can students access information through Internet resources, but they can also utilize networking to work with other students. Telecommunication and the Internet hold immediate resources on choreography, history, and notation.

Equity

Internet and computer-mediated communications through e-mail serve as great equalizers.³ Since students can communicate with anyone who has access no matter the racial, socioeconomic, political, or geographical situations, computer-mediated communication is “a flexible and productive tool for the classroom teachers” and “provides an immediate means of obtaining and communicating information.”⁴ Among the strengths of asynchronous computer teleconferencing is that it is a student-centered medium that promotes active

learning and “faceless intimacy” among students and it encourages less aggressive students to participate. Access to a global dance community heightens students’ perception of dance in their external environment and broadens their dance community.

Community Building

Computer-mediated communication is a powerful tool for bringing teachers and students together as a community of learners. Riel⁵ points out that the traditional classroom is confining, in that it “isolates both students and teachers from the experiences that will help them understand the past, develop skills for building a future, and prepare for their role as citizens.” The Internet is a powerful resource for accessing distributed information and interpersonal communication. Telecommunications and the Internet have added inherent value as students’ written work becomes a motivation for communicating their ideas and experiences. Riel views the Internet as “a place

where people can go to meet others with similar interests, build new settlements, share knowledge through teaching and learning, and form communities around common practices.”

Through the Internet, the Discover Dance CD-ROM brings the “outside world” into the classroom, which is important when working with students whose previous dance experiences may have been limited to weddings, television, or a sibling’s dance recitals. Discover Dance contains a section titled, “Inside & Outside Dance,” which is designed to familiarize students and educators with the wide range of dance in their own communities and the world. Presentational and participatory instructional support materials assist students in investigating, understanding, and contextualizing their own dance community within the larger world dance community. In “Dance Identity Map,” students investigate their personal and cultural knowledge in dance. They record their observations in a personal database, offering an opportunity to personalize their experience and compare it to dance forms found in other parts of the world. In “WWWeb Dance,” students surf the World Wide Web, visiting pre-selected dance web sites. By reaching out using the World Wide Web, individual artists from all over the world are recognized, acting to strengthen the global community and informing students’ growing definition of dance education.

Constructivist Pedagogy/Discovery Learning

Current trends in education reflect a shift from didactic pedagogy toward student-centered constructivist pedagogy.⁶ The constructivist theory of learning is a model that views learners as actively involved in the construction of their own representations of knowledge. According to this view, “learning is the process of building knowledge structures by connecting what is known to new information, ideas, and concepts and integrating them to form new understandings.”⁷ Mendrinós² further describes the value of constructivist pedagogy in the learning process:

In the electronic world as one is thinking as one is doing, one is concretely visualizing the thinking process. Learning is an active process. The student is en-

gaged, interacting with the screen display. It is the visual integration and conception of ideas, key words, graphics, images, videos and sounds that are critical learning stimuli for students. Electronic tools allow students to map concepts, ideas, to outline terms visually as well as abstractly while still being in control of the tactile manipulation of the data. The student is the navigator in the electronic world of information. This navigation breaks the mold of the linear and straight course. It promotes divergent thinking, branching, promoting the adventure of searching for connections, exploring and creating new constructs, forming a bridge to a new knowledge path.

In this context, IT, multimedia, and computer-mediated communications provide opportunities to nurture students in the development of a knowledge base and problem solving and thinking skills with motivation and movement.

Student-Teacher Discourse

An advantage of IT in the dance classroom is the computer’s ability to easily capture and store students’ thoughts and ideas on the hard drive and on paper. This affords both the student and teacher the opportunity to return and reflect on their work at a later time. These observations can become a part of class discussion, dance making, and evaluating the progress and performance of a student.

Discover Dance supports students’ investigations by providing problem solving activities, kinesthetic prompts, and printable databases for recording student work. The CD-ROM can be used independently to locate information, or as a workbook for storing and updating projects, observations, creating dances, chronicling movement experiences, and archiving students’ own dance history. In addition, the CD-ROM addresses dance criticism and observation content through problem solving activities and digital databases. For example, a student may visit the “Fantastic Dance,” the digital library of dance where dances choreographed by professionals and children are presented (Fig. 2). After watching a short video clip, the student responds to questions relating to the observational concepts and elements of dance. The

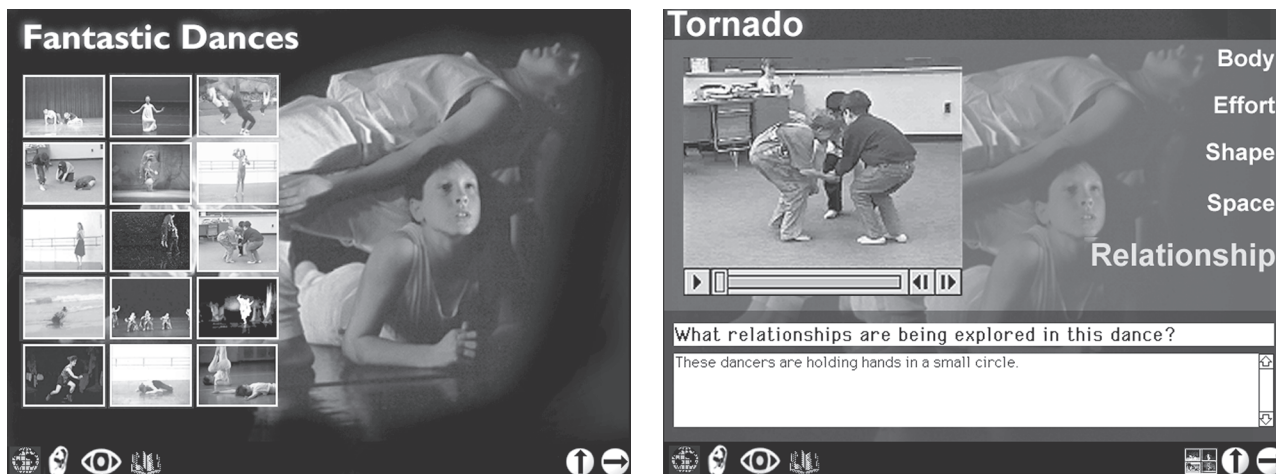


Figure 2 The Fantastic Dance digital library broadens the student’s knowledge base encouraging description, observation, interpretation, and analysis

students’ answers are recorded into their personal database which also contains their previous observations. In the process, the student observations mature and their capacity to communicate, observe, and analyze become more precise. It is my belief that the combination of kinesthetic experience and ongoing written responses will work to forge a different form of communication between students and teachers in dance. Unfortunately, the road to rich dance technology resources is not without pitfalls.

A strong incentive for computer use in dance is the computer’s constantly evolving capability of interactive video and sound. With the proliferation in Internet technologies, elementary and middle school administrators are working hard to meet the ever-escalating demands that the technology requires (e.g., the need for better computers, faster Internet connectivity, and a lower student-to computer ratio). Outdated hardware and the lack of developmentally appropriate software hinder the dance teachers’ ability to integrate technology into their curriculum. Investment in educational technology is expansive and there is widespread interest in its ability to facilitate teaching and learning, yet many issues remain unclear and deserve careful examination.

Professional Development

Computer integration has been mandated on a national level at all age levels and within all subjects. Although this is warranted, the issue of implementation is a real concern since most of the teachers in today’s class-

rooms have had little formal training in technology and how to best use it in the classroom. Teachers’ attitudes toward computers and about using computers in the classroom vary widely. Some teachers feel excited about integrating computers into their teaching, while others feel intimidated. Often, this fear stems from lack of professional development opportunities in dance education. At the present time, there is one program, “Making Connections: Technology, Education, and Dance,” from the Southeast Center for Dance Education, that is working to fuse teacher training in both dance education and technology.

Quality Software and Hardware

Another concern in using computers in dance education is whether computers can fit in the teaching and learning of dance. At the present time, Discover Dance is the only software designed for elementary school dance students. Discover Dance has received attention nationally and internationally as a multimedia CD-ROM created for the specific needs of elementary school students and their teachers. However, much more is required to meet the increasing demand.

Outdated hardware and the lack of developmentally appropriate software hinder dance teachers’ ability to integrate technology into their curriculum. A strong incentive for computer use in dance is the capability of interactive video and sound. Successful presentation of video and sound require “state of the art” computer hardware. Without quality hard-

ware, digitized dance video appears choppy and clipped or will not play at all. Adequate hardware is necessary for integration within the dance curriculum.

Inequity

Perhaps the most pervasive discord in technology integration in education is access inequity. Students and teachers across the nation find themselves divided into the "information rich" and the "information poor." Issues of inequity are strikingly apparent. Maddaus⁸ pointed out that:

Technology is not by itself socially unjust. It is however, inextricably intertwined with the distribution of wealth, race, and gender relations. Since technologies are a product of the existing structures of opportunities, and the constraints in society, they are likely to extend, shape, rework and reproduce this structure.

Information technology has divided our society not only into those with access and those without access, but among those with access a further dichotomy has arisen in how the computer is viewed and used in the learning process. In Watt's⁹ research on the inequity of teaching he reporting that affluent students were encouraged to "tell the computer what to do" while the less affluent were encouraged to learn "to do what the computer tells you."

There is growing support from school administrators for lab time and budgets to purchase computers for student use. Although this is not a reality in many schools across the country, there are some positive signs that this is changing.

Passive Learning

Dance educators fear that instructional technology will result in an imbalance between physical and intellectual learning in dance. They equate technology with passively sitting, clicking, observing, and typing. They have an authentic concern that technology will diminish or remove the need for kinesthetic experience altogether. It must be remembered that a videotape of a dance performance is only a representation of the dance and not the dance itself; video flattens the three-dimensional art into a two-dimensional image. Teachers are justly apprehensive that with technology, students may view digitized videos of dance and

write reflective essays on dance without physically experiencing anything.

Human Kinesthetic Digital Interaction

Current educational research praises the value of kinesthetic intelligence,¹⁰ believing that rich knowledge can be gained from the physical embodiment of ideas and feelings. This metacognitive knowledge can then be transferred and applied to a wide variety of learning contexts. It is unknown how students learning dance may be changed from the integration of technology. In a society that is already distanced from active physical participation and that prefers television, will dance-specific technology used in dance education create a spectator sport rather an activity that demands participation? Will technology in education remove the joy of improvisatory expression and "thinking in the moment" and replace it with automaton-like dance structures? Or worse?

While dancing, physiological changes occur; sensations of the body and its intelligence are expressed in time and space. Students of dance learn what it is like to be "in the moment." Researchers have described it as an integrated mind-body connection, allowing the dancer to be concentrating on available possibilities in the space, and at the same time to be relaxed and able to meet and respond to opportunities as they come. Finding and maintaining this synchronous mental state is essential in all dance. There needs to be sufficient concentration so that the mind and the body are synchronized and the mind open to impulse and flow of movement ideas from the body.¹¹ This cannot happen in a top-down, "head first" manner. The moment of movement is united with the purpose to create and express. What happens if we place the "top of the head" as the filter for the dance experience? There is justifiable concern that computer-assisted instruction will value a more ordered digital knowledge extinguishing the need for the body altogether.

What's Next

CD-ROMs, educational software, web sites, e-mail, list servers, Usenet newsgroups, and databases have changed the ways in which information is delivered and in which students and teachers access and use it. The implication for these technologies is that the future for dance educators is great. But, will they use them? To

date, no studies have been published on this use of the media with children in dance.

In the future, teleconferencing and the Internet will dominate education teaching and learning. Children of all ages will be co-creating dances and sharing them with other children around the world. Teleconferencing software (already in some schools today) will foster "live" dance sharing. Web sites for children will disseminate their choreographic and written works in dance. Dance education list servers and newsgroups will present a global forum for kids "talking dance." In the coming years, all applications will communicate allowing students to research, notate, create, analyze, assess, and archive their learning in dance.

The Discover Dance CD-ROM will be available in mid-2001. Readers may contact the author at Mila.Parrish@asu.edu for further information.

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