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### International Research on Permanent Authentic Records in Electronic Systems

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International Research on Permanent Authentic Records in
Electronic Systems (InterPARES):
Experiential, Interactive and Dynamic Records

# Dance Preservation
# Annotated Bibliography
## (Draft version 1.0)

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requested.

The primary theme throughout all the articles is that choreographers and dance theorists view technology as another creative outlet.  Very little attention was paid to preserving recorded dances, electronic dance notations, etc., for long-term use.  Some possible reasons might include lack of information concerning preservation, the belief that preservation is too time consuming, and that detailed documentation does not suit their current recordkeeping needs.

## Books and Print Articles

**Benesh, Rudolf and Joan.  *Reading dance: the birth of choreology.*  London :   Souvenir Press, 1977.**

This book was written by the developers of one of the more popular systems of dance notation.  The majority of the book discusses how the notation can be applied to different kinds of dance.  In a chapter titled "Copyright and Choreography," the authors write that an "adequate" record for copyrighting choreography must "be able to record the positions, steps and movements, groups and stage patterns so that the work could be reproduced from it 'in the form in which it is to be presented'" (115).  The authors promote notation as the best kind of record for copyrighting purposes.  Also in this chapter, the authors write that "the first and obvious function of notation [is] to record, for preservation and posterity" (119).  In the following chapter, the authors compare the ability of film or videotape and notated 'scores' as recording tools.  Among other arguments against videotape and film, they write that these recording methods lead to problems of ambiguity (121).

**Birringer, Johannes et al. "Dance and Media Technologies." *PAJ: A Journal of Performance & Art* 24.1 (2002): 84-93.**

This article gives an overview of how dance is evolving to include new technologies. The author lists four kinds of evolving environments where dance and technology intersect: (1) interactive environments (based on sensors and motion tracking); (2) immersive environments (virtual reality-based ...or panoramic installations that integrate body and vision into the polysensual illusion of moving through space); (3) networked environments (telepresence, video-conferencing, and telerobotics, allowing users to experience a dispersed body and to interact with traces of other remote bodies, avatars, and prostheses); and, (4) derived environments (motion-capture-based reanimations of bodily movement or liquid architecture, which can also be networked and reintroduced into live telepresence or telerobotic operations and communications between remote sites)" (88-89).  There is not much about preservation of these performances, but the author states that "Digital dancing and telematic performance are non-objects, hybrid forms existing in a virtual space contextualized by the medium and method of recording (91)."  This suggests that technologies or mediums used in recording must be preserved as well as the 'content' of the performance.  The author continues along these lines by discussing the procedures necessary in producing a final product in these environments: "Performance becomes a multimedia process of design, interactive architecture, capturing, editing, transposition, and conversion of movement possibilities and structures, some of which may not even be anticipated by us in the rehearsal. This process will be conducted by teams of artists and engineers from different disciplines" (92).

**Bishko, Leslie. "Relationships between Laban Movement Analysis and Computer Animation." In** *Dance and Technology I*. **28 February – 1 March 1992, University of Wisconsin-Madison. Ed. A. William Smith. Westerville, OH: Fullhouse Pub., 1992. 1-9.**

This article is a discussion of how an animator has applied Laban Movement Analysis to computer animation. The writer argues that Laban can create a concrete description of movement which can be used to recreate these movements.

Commentary: It is important to note how Laban can be used to describe movements so that they can be recreated at future times, thus preserving some aspects of the 'dance.'

**Bradley, Elizabeth** and **David Capps, Andee Rubin. "Can Computers Learn to Dance?" In** *Proceedings of International Dance and Technology 99 (IDAT99)* **25-28 February 1999. Arizona State University. Ed. A. William Smith. Lethbridge, AB: FullHouse Publishing International, 1999. 12-16**

This article describes two computer tools that create "variations on a pre-defined movement sequence" (12), meaning that the computer applications are "active collaborators" in the creative process (15). These programs are limited by the amount of postures that are programmed into them. There is no discussion on preservation, but its discussion on computers learning "the grammar of dance" (13) might be relevant.

**Brennan, Buff. "Creating Movement Profiles using Laban Movement Analysis." In** *Dance and Technology I*. **28 February – 1 March 1992, University of Wisconsin-Madison. Ed. A. William Smith. Westerville, OH: Fullhouse Pub., 1992. 10.**

This is a brief abstract of how the author used technology to record and deconstruct a dance into its constituent movements using Laban Movement Analysis.

**Brudelin, Armin. "How to Produce Movement with a Computer." In** *Dance and Technology I*. **28 February – 1 March 1992, University of Wisconsin-Madison. Ed. A. William Smith. Westerville, OH: Fullhouse Pub., 1992. 10-17.**

In this article the author discusses several problems associated with representing human movement using computer-generated models. The author makes several suggestions how these problems might be resolved. It contains no information concerning the preservation.

**Fügedi, Jànos. "Ön the Way to Computer-Aided Dance Analysis." In** *Dance and Technology I*. **28 February – 1 March 1992, University of Wisconsin-Madison. Ed. A. William Smith. Westerville, OH: Fullhouse Pub., 1992. 20-25.**

This article details an experiment using a computer program based on Labanotations to analyse a Hungarian folkdance. The analysis is based upon predefined stored movements with a constellation of peripheral symbols. The author concludes that it is a useful tool to understanding dance, but invariably requires additional development. It is important to note that capturing components of a dance is one way of preserving it.

**Gelernter, Judith and Constance Old. "The Index of the Performing Arts (IPA) at the Metropolitan Museum of Art." In *Dance and Technology III*. 18-21 May 1995, York University. Ed. A. William Smith. Columbus, OH: Fullhouse Pub., 1995. 9-16.**

This article discusses the Mets project to create an image database for dance, music, and theatre (i.e., the IPA). The information is to be 'catalogued' according to subject. Three considerations will inform the cataloguing process. First, how will information be organised into fields? Second, what syntax will be used in the fields? Last, what standard terms will used with the syntax? The Met has determined to use MARC VIM to guide their efforts. One of the Mets aspirations is to create a standardised format that will enable records to be easily added to the database in the future. This is one of the few examples of an institution trying to preserve dances, even if it is basing its preservation on non-archival standards.

**Gray, Judith. "Capturing and processing Dance Images with Computers." In *Dance Technology*, ed. Judith Gray (Reston, VG: AAHPRD, 1989): 119-122.**

This short article discusses a system for capturing, processing, and displaying video and photographic images of dancers and includes the possible uses of the system for dancers, choreographers, technicians, and teachers. Gray concludes that technology will change "the face and perception of dance as an art form." Of note in this article is Gray's belief that a digital image (or any other type of electronic document) "can be stored indefinitely in a computer." (Do choreographers who use technology still hold this belief?)

**Gray, Judith. "Dance Research in the Information Age: An Update of Dance and the Newest Technologies." In *Congress on Research in Dance, International CORD Conference (1986)*. 23-28.**

Gray's article gives an early response to the impact of technology on dance. Most of what Gray touches on is outdated. One important point is that Gray saw one of the largest problems for the future is "the philosophical and practical difficulties of reproducing, preserving and interpreting the aesthetic of dance."

**Hagist, Fred. "A Computer Program for the Entry of Benesh Movement Notation." In *Dance Technology*, ed. Judith Gray (Reston, VG: AAHPRD, 1989): 73-81.**

In this article, Hagist discusses the benefits of having a computer program for recording Benesh Movement Notation. One of his arguments is that it will save time and effort, pointing out that previous methods for recording dance notation tended to be time consuming. He also argues that such a system is efficient for creating, modifying, storing, and retrieving scores and an indispensable tool for anyone wanting to record human movement. Unfortunately, Hagist does not touch any further on the issue of future retrieval of electronically created records.

**Hutchinson, Ann**.  *Labanotation: The System of Analyzing and Recording Movement.*  **New York: Theatre Arts Books, 1970.**

The first and third chapter of this book discuss dance and movement notation, while the rest of the book focuses specifically on Labanotation.  Hutchinson writes that "recording complicated movement accurately" is one of the three fundamental problems when attempting to notate dance (1).  The second problem described is "recording it in economical and legible form" (1-2).  In the past, different notation systems have only been used as long as they suited the dance styles of historical eras (2).  In the second chapter, Hutchinson has a short section entitled "A Means for the Preservation of Choreography," in which she writes that because "of the inadequacies of earlier methods of notation, we cannot be certain…that eighteenth-century court dances are being reconstructed today precisely as they were originally performed.  Details of style and execution were left unstated because knowledge of these was assumed" (7).  She suggests that contemporary notation allows for "adding as much or as little detail as the choreographer wishes," more detailed notations being desirable for "proper recreation" and less detail, or more general statements of movement being desirable "to allow the performer freedom in interpretation" (7).   Hutchinson identifies space, time, energy and the involvement of different body parts as elements that need to be captured when recording body movement (11).

**Hutchinson Guest, Ann.**  *Choreo-graphics: A Comparison of Dance Notation Systems from the Fifteenth Century to the Present.*  **New York: Gordon and Breach, 1989.**

The book for the most part compares different systems of notation from various perspectives.  Throughout, Hutchinson Guest shows that differing aims for notation dictate what kind of system is chosen by different users.  When discussing the advantages of differing systems, she notes repeatedly that the needs of the users – notators, choreographers, teachers and dancers – often dictate that the notation be simple with less detail, making it easier to read.  However, some users demand "high fidelity" (xi) or a "scientific accuracy" (xv).  In the Conclusion, Hutchinson Guest writes: "If a writer knows the particular use anticipated for a notation, he/she can choose the degree of detail accordingly.  When a dance work is being revived solely from the score by someone who has never seen the work and is unfamiliar with the choreographer's style, every detail written is 'squeezed dry' to recapture the essence of the work, the intent, movement, initiation, focus, dynamic quality, and so on.  At such times a full, detailed score is not only welcome but essential" (179).  Hutchinson Guest uses the term accuracy often.  For example, in the Conclusion she writes: "Accuracy is of particular importance with respect to published materials and professional scores.  For one's own personal use, material can be speedily jotted down….But if such notes are too sparse and are not referred to for a considerable time, then inaccuracy and lack of detail may render them worthless" (181).

**Laban, Rudolf**.  *Principles of Dance and Movement Notation.*  **London: MacDonald   & Evans, 1956.**

This book discusses the Labanotation system for notating dance.  There is general discussion on the development of notation systems in the first part of the book.  Laban uses the term "integrity" as follows: "Besides the practical issues connected with the copyright of dance works, the use of notation has the effect of preserving the integrity of original works" (11).  Presumably, he means

by this that notated works can be recreated at a later point as they were intended to be performed originally.  In the beginning of the second part, the author describes how one movement that can be captured in Labanotation would be inadequately captured in words (15).

**Lacatena, Mark A.  "Computer Generated Dance."  In *The Congress on Research in Dance, International CORD Conference (July 13-17, 1988)*, Ed. Sondra Fraleigh.  105-110.**

This paper is concerned with outlining a general design structure for a computer program that would create a notated score for a dance.  Lacatena identified four functions necessary for such a program to work.  These are a source function, a mapping function, a composition function, and an output function.  The output of the program would be a printout of a completed score.  This is an interesting article because it tries to break the electronic capture and generation of dances into its component parts.

**Lee, Catherine.  "COMPOSE: A Computer Tool for Choreographers."  In *The Congress on Research in Dance, International CORD Conference (July 13-17, 1988)*, Ed. Sondra Fraleigh.  111-122.**

In this paper Lee discusses the progress made on COMPOSE, a computer program developed at Simon Fraser University to create printouts of choreographed scores.  Lee outlines several of the challenges faced by researchers and hopes for future development.  One hope is to allow dances created using COMPOSE to be transcribed into Laban, Benesh, or other form of notation.  The program would allow the choreographer to save a score on their computer and give them the opportunity to come back after several months and work on it again (i.e., edit the score).  Lee also hopes to include sound and spatial components to the program in order to capture more elements of the dance.

Commentary:  One of the key points Lee makes is that through recording a dance, COMPOSE would allow some unique movement sequences to be documented and copyrighted.  This suggests that there are identifiable elements of a dance that can be captured using electronic means, which is essential for long-term preservation purposes.

**Naugle, Lisa Marie.  "The Cassandra Project: In the Mediascape of the Internet."  In *Congress on Research in Dance, International CORD Conference (November 12-15, 1998)*, Ed. Nancy Stokes.  101-108.**

This is a transcript of a presentation given by Naugle describing her experience as a performer and choreographer of the Cassandra Project.  The Project was a series of Internet-based concerts integrating dance, music, and theatre performed live and synchronously from three remote sites.  One important observation Naugle makes is that there is as of yet no common vocabulary amongst those combining technology and dance.  There is also no consensus on what the new technology means in the context of the performance.

The Cassandra Project used videoconferencing software (CU-SeeMe) over the Internet to present the dance.  The performance used both live dancers and recorded digitally enhanced images.  Naugle also distinguishes between two types of 'Internet' dance.  The first is 'web dance' which

is a recorded dance that can be accessed at any time using a media player plug-in (e.g., Quicktime). The other type is an 'Internet performance,' which is live and ceases to exist after it has finished (unless it is recorded).

Commentary: Naugle article is enlightening in that it touches on many different elements of a computerised dance. For example, pixilation, time lag, and freezing become elements of the performance, but are unpredictable. How then should these 'random' elements be accounted for?

**Rosenberg, Douglas. "Dancing for the Camera." In *Proceedings of International Dance and Technology 99 (IDAT99)*, Arizona State University, Tempe, Arizona, 25-28 February 1999. Ed. A. William Smith. Lethbridge, AB: FullHouse Publishing International, 1999. 65-68.**

This article mostly focuses on Dance for the Camera as a different form of dance-work, but there is also some discussion on film and video as a means of documenting dance. The author writes: "Dance documentation is generally done to preserve a choreography or a performance in its totality. All entrances and exits should be included and the choreography should be seen as an unbroken whole with no editing from beginning to end. This of course requires a very wide shot and much of the energy of the performance is lost" (65).

**Ryman, Rhonda and Robin Hughes-Ryman. "The Computerized Production of Educational Material on Benesh Movement Notation." In *Dance Technology*, ed. Judith Gray (Reston, VG: AAHPRD, 1989): 103-110.**

This article discusses the integration of computer software on the Macintosh platform and Benesh Movement Notation (together known as MacBenesh). The authors point out that MacBenesh allows for frames and series of frames to be cleared, deleted, saved, or moved, allowing quick and efficient editing of scores. The scores can then be printed. No mention of long-term preservation is mentioned.

**Smith, A. William and Vera Maletic. "danceCODES: the OSU Dance Comprehensive Documentation Shell." In *Proceedings of International Dance and Technology 99 (IDAT99)*, Arizona State University, Tempe, Arizona, 25-28 February 1999. Ed. A. William Smith. Lethbridge, AB: FullHouse Publishing International, 1999. 77-80.**

This article describes the project danceCODES that had the following among other objectives: "To provide a conceptual approach and methodology for creating a multimedia database for documenting all major components of a dance production....To create a software shell, which can be used by dance companies or individual choreographers to document and preserve their work" (77). The authors describe how the software can capture different multimedia components of a dance production, but do not address long-term preservation. The software shell was created by documenting two works of a single choreographer. The shell was supposed to be "user-friendly...so anyone can put their materials in by merely naming them in a certain manner. Access to those photos, movies, and other media then will be as simple as clicking on a button" (77).

## Web Articles

**Auslander, Philip. "Ontology vs. History: Making Distinctions Between Live and the Mediatized" in <u>Digital Conference on Performance and Technology</u>, 1997.**
http://webcast.gatech.edu/papers/arch/Auslander.html

In this article Auslander considers the way media and information technologies relate to and interact with live dance performances. He notes that "technologized" forms are often portrayed in opposition to live performances. This opposition is based on two primary issues. First, some performers believe that a performance can be defined as "representation without reproduction." In other words, a performance is meant to disappear after it has been performed. Second, some performers see technology destroying the bond between performers and a limited number of spectators. Auslander argues against both these objections and demonstrates how live and reproduced performances are not in opposition.

Televisual images, as well with any electronic media, are constantly changing and do not represent a static reality. Also, magnetic tapes change with every playing, degenerating with each use. Auslander points out that some live performances can adopt the characteristics of a reproduced media. The example he cites is "It Can't Happen Here," which opened simultaneously in eighteen different American cities. Based on similar examples, Auslander concludes that it is not productive to see live and mediatized forms as ontological opposites.

Commentary: Auslander makes a good observation concerning the mutability of technologically reproduced performances. No electronic media can represent a static media. An electronic file 're-presents' itself in a new way each time it is played, copied, emulated, etc., regardless of whether the content appears the same.

**Birringer, Johannes. "Lively Bodies—Lively Machines." 1996.** Internet.
http://www.art.net/resources/dtz/birring.html Available September 14, 2004

In this article Birringer describes his experience at the Lively Bodies—Lively Machines (LBLM) workshop held at the SPLIT SCREEN festival in 1996. The project that he was part of explored the interaction of real life performers with technology. Birringer sees LBLM as a first step in connecting movement to computer codes. In this instance, LBLM created a dance in which the choreographed movements of a dancer triggered sounds or images that were stored on a computer. The images or sounds that were triggered were different with every performance, even though the choreographed dance remained the same. In essence, the performance was different each time.

The dance has five elements: the live performer, a digital camera, a Macintosh computer, an image and sound projector, and the software.

Commentary: Important to recognise how productions are reliant upon several different medias. Also, that it is increasingly more difficult to identify the original version of a production, especially one that has a high degree of randomness built into it.

**deLahunta, Scott. "New Media and Information Technologies and Dance Education."**
**1996.** Internet. http://www.art.net/resources/dtz/scott1.html Available September 14, 2004.

DeLahunta first points out that the qualitative difference between previous 'nearly instantaneous' communication innovations (e.g., telegraphs) and the ones of today (e.g., email) is that today's technology is digital. Once characteristic of digital information, according to DeLahunta, is that it can be sent anywhere on the Internet to be independently reconstituted as a perfect copy at the other end. He goes so far as to assert that the perfect copy is actually an original by virtue that there is no degeneration of the material object.

Another point he makes is that digital technologies offer a 'better' system for recording and preserving dance. Firstly, digital recordings will not decay, and secondly, motion capture can be used to record movement and make it available in three-dimensions on the computer screen. A motion-captured dance would then be linked to a dance notation system in order to study and learn from it. Also, a captured dance could be later edited.

Commentary: DeLahunta touches on some intriguing issues. From an archival standpoint, his argument that digital imaging can provide a good way to capture performances is important, especially when the digital record of the dance could then later be annotated with dance notations. Attaching dance notations would provide the record with additional information relating to the various elements of the performance which may only be apparent to the choreographer (author).

**deLahunta, Scott. "Speculative Paper: Theatre/Dance and New Media and Information**
**Technologies." Presented to the *Working Groups on Dance and Drama, Research Group on***
***Reorganisation of Professional Arts Education*, Amsterdam 1998.** Internet.
http://www.art.net/resources/dtz/scott3.html Available September 14, 2004

DeLahunta's paper explores the relationship between the professional fields of theatre and dance and 'new media' technologies.

Commentary: This is a theoretical paper that explores technologies impact on dance and their audience. No useful information regarding the preservation of electronic records is present.

**Gromala, Diana** and **Yacov Sharir. "Virtual Bodies: Travels Within." ca. 1994.** Internet.
http://www.art.net/resources/dtz/vb.html Available September 14, 2004

The authors of this paper explore the artistic, intellectual, visceral and emotional issues that are attached to using virtual technologies. More specifically they consider how electronic technologies influence the artistic processes and experiences of the body in the visual arts and dance.

Commentary: This is a meditative piece that offers only slight insight into the long-term preservation of electronic records. Where the article might be useful is by discussing the dancer's experiences when they use new technologies in their dance. This would only be useful

if it is deemed that a dancer's 'visceral' experience (e.g., how they experienced interacting with the technology) is a necessary element for the capture of the electronic record.

**Johnson, Catherine J**. and **Allegra Fuller Snyder.** *Securing Our Dance Heritage: Issues in the Documentation and Preservation of Dance***.  Washington, DC: Council on Library and Information Resources, 1999.**  Internet.  http://www.clir.org/pubs/reports/pub84/pub84.pdf Available September 9, 2004.

In the Foreword of this publication, the authors argue that "Like music, dance exists only in performance and, like music, while there are means to notate choreography, as there is to notate a score, dance is best captured through multiple means of documentation (iv)."  Along the same lines, Snyder suggests that "The tools that can fully document such a three-dimensional form have not been available until this century (1)."  Snyder identifies "the difficulty of accurately capturing a three dimensional experience (1)" as the reason why there is a lack of dance documentation.  She traces the changes in recording technologies, comparing the mediums as they historically supplanted each other.  For example, she writes: "Video had important advantages over film: longer recording time, instant playback, and synchronous sound…Since video made it easier to capture movement in time and through space, the ephemeral aspect of dance was fast becoming less of an issue (8)."  There is also a small section giving an example on how a dance was reconstructed from incomplete earlier records based on a few preserved elements of the performance, such as costume design (10).  A section on 'Electronic Media' briefly outlines how new technologies are being incorporated into dance and are being used to capture, compose and teach dance.  The chapter on Preservation only mentions transfer of video recordings to new digital mediums with reference to possible standards arising from the Universal Preservation Format initiative, which advocates for a "format for the long-term storage of electronically generated media (35)."

**Kac, Eduardo.  "Aspects of the Aesthetic of Telecommunications."  Original published in** *Siggraph Visual Proceedings***, edited by John Grimes (New York: ACM, 1992): 47-57.** Internet. http://www.ekac.org/Telecom.Paper.Siggrap.html  Available September 14, 2004.

Kac examines the nature of collaboration using telecommunications.  He points out that many of the documents created for a performance are not the final product, as what normally happens in fine arts.  Rather, these documents serve the function to formulate ideas and communicate with other people, to "spark a multidirectional visual dialogue" with people in remote locations.  It is assumed that the documents will be changed and transformed throughout the process "as much as speech gets interrupted, complemented, or altered and reconfigured" in a face-to-face conversation.  At the end, the images and graphics stand not as the end-product, but as a record of the process of visual dialogue promoted by the participants.  The documents produced take various media forms (e.g., fax, email, slow-scan television, etc.).

Later Kac discusses multidirectional communication.  For Kac, the artist becomes a mediator, taking, adding, and deleting as the 'conversation' progresses.  Discussion in such a conversation travels on many separate, but related tangents.  Such an interaction is difficult for someone not involved in it to understand how it progressed over time.  This is quite different from what he

sees terms linear communication, which is much more structured and regulated (e.g., mailed letters)

Commentary:  Much of Kac's argument looks at the various ways artists have communicated throughout time.  The most important part of his argument is his discussion of the nature of artistic collaboration using technology (a multidirectional interaction) and the production of documentation.  It demonstrates that capturing the artistic process with all its relevant contextual information is a difficult task.

**Kozel, Susan.  "Material Mapping: Review of Digital Dancing 1997."  1997.** Internet. http://www.art.net/resources/dtz/kozel2.html  Available September 14, 2004.

This article is a review of a two-week event that took place as part of London's Dance Umbrella Festival in 1997.  It was a venue for "collaborative exploration" between choreographers, dancers and digital artists.  The article briefly describes many of the issues that arose during the event (e.g., feedback, lagging, and resonance).

Commentary:  Conspicuous by their absence are issues related to the preservation of technologically dependent performances.  The focus seems to remain solely on creation as oppose to 're-creation' and preservation.

**Kozel, Susan.  "Spacemaking: Experiences of a Virtual Body."  A longer version of this article appeared in *Dance Theatre Journal* 11:3, 1994.** Internet. http://www.art.net/resources/dtz/kozel.html  Available September 14, 2004

Kozel describes her participation in Paul Sermon's *Telematic Dreaming*, a performance that relied on the performer and members of the audience using a technology called 'telepresence.' In the performance, Kozel's image was projected onto a bed.  The audience had the choice to join Kozel's projected image on the bed during the performance.  Another camera captured the audience and returned it to Kozel, who could then vicariously interact with the audience members who chose to go on the bed.  The performance, invariably, changed each time.  Kozel describes the performance as emotionally and physically taxing, but also extremely rewarding.

Commentary:  Although a fascinating article (and performance), Kozel does not discuss issues concerning its preservation.  Although, given that the movements changed with each new interaction, attention for future representation should be given to the physical set-up of the performance space(s).

**Ramsay, Susie.  "Bring your Body: The Dance Community and New Technologies." *Kunstforum International* 133 (Feb-April 1996).** Internet. http://www.art.net/resources/dtz/susie.html  Available September 14, 2004

Ramsay argues that the dance community has unique knowledge that allows them to positively contribute to the developing virtual reality world.  In order to do so, the dance community must first re-examine their assumptions concerning new technologies in order to distinguish well-founded suspicions from misguided fears.  The bulk of Ramsay's article is her exploring the

various misconceptions the dance community has about virtual reality technology (e.g., it dehumanises the user).

Commentary:  No information concerning long-term preservation of electronic records.


## Web Sites

*Dance & Technology Zone*, http://www.art.net/resources/dtz/ Internet, available   September 1, 2004.

This Web page has links to many of the web articles included in the bibliography above.  The Dance & Technology Zone mission statement includes the following three objectives for the site: "First, to promote research and present thoughtful inquiry into the ways in which these new tools will effect both process and content. Second, to create an umbrella data service which will provide links to artists and events on (and off) the net. Third, to create a shared resource of practical information and know-how for artists, practitioners and educators who by necessity or choice, are fashioning these new technologies themselves" (http://www.art.net/resources/dtz/mission.html).  There are links to relevant articles under the *Critical Theory* section.

*Dance Heritage Coalition*, http://www.danceheritage.org/about/ Internet, available, September 9, 2004.

The Dance Heritage Coalition (DHC) was founded in 1992 to address problems identified by a field-wide study of the current state of preservation and documentation of American dance (http://www.danceheritage.org/about/).  The DHC runs the Digital Video Preservation Reformatting Project that aims to "determine and specify preservation file format candidates appropriate for the dance community to preserve its heritage (http://www.danceheritage.org/preservation/)."  A final report for this project was to be published to the site in Spring 2004 but does not appear to be posted yet.  There is a final report posted from the Learning Applications to Document Dance (LADD) Project that suggests standards for quality videotape production and documentation.  The findings may be relevant in that they describe ways how the means of recording can best emulate the aesthetic qualities of the dance, such as the movement of the camera being appropriate to the energy of the dance (http://www.danceheritage.org/publications/ladd.html).

*Dance Notation Bureau*, http://dancenotation.org/DNB/ Internet, available September 9, 2004.

The Dance Notation Bureau (DNB) aims to create scores of dances so that they can "be performed long after the lifetime of the artist (under *About DNB*)". The Web site has good brief explanations of Labanotation and the notation process.  According to this description of the notation process, the notator records "not only the steps but also any imagery, motivation, and characterization given to the dancers by the choreographer or stager (under *Notating Dances*)." But, in the future, this score "allows each artist to learn the work without being influenced by someone else's artistic interpretation (under *Notating Dances*)."  DNB also collects materials to

supplement the notated score, such as a marked music score, audiocassettes and videotapes; production information such as "costume swatches and designs, lighting plots and set designs; as well as newspaper reviews, programs and photographs (under *DNB Library*)."

***Merce Cunningham Dance Company***,
http://www.merce.org/home_page/home2/HOMEPAGE.htm  Internet, available September 1, 2004.

The Merce Cunningham Dance Company was one of the first companies that established an archival program.  Cunningham has also been at the forefront of using computer and motion capture technology to both record and create choreography.  With the Dance and Science Departments of Simon Fraser University, Cunningham helped with the development of DanceForms software.  There is a link on the Web site to the DanceForms software vendor. There is also the following note on the site on a new project that would result in an entirely digital performance: "Merce Cunningham is collaborating with the Riverbed group and Unreal Pictures to invent the first dance for the computer by a major choreographer. Viewers will enter a virtual hand-drawn world in which abstract dancers perform a full and completely new Cunningham work" (under *Technology*).   The Web site only has brief descriptions of these projects and the archival program.