

# Digital Tools for Expanding Access to Dance: Creative Uses of Technology

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National Dance Heritage Leadership Forum  
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## 0. Tech for Tech's Sake?

It's no surprise that an overwhelming majority of respondents to the recent Dance Heritage Coalition Field Survey<sup>1</sup> mention "technology" as one of most significant factors in the field of dance. What is more surprising is that both "technology" and "technological obsolescence" figure variously in these responses as both leading internal and leading external "forces affecting the field"; likewise, "technology" and "technological solutions" are among the leading priorities for the DHC and leading desired outcomes. In other words, not only is technology "the critical thread that weaves through" all the responses to the Survey – what is striking is that this same "technology" is widely mentioned in both strongly positive and strongly negative lights, as both question and answer; both as a welcome response to the decay of material artifacts (e.g., via digitization), and as among the most ephemeral of phenomena (e.g., digital files themselves); as both sin and salvation. So entrenched has "technology" become in 21st-century Western society, so spectacular have been its rise and its successes, yet so mysterious its implementations and so inscrutable and crippling its failures, that this "new new thing" has come to dominate the discourse of nearly every imaginable field of human activity, including that of our present concern, one of the most ancient and "pre-technological" of human phenomena, dance.

At the same time, the "technology" we're presumably talking about – even when we're talking about the specific technologies of interest to the field of dance – is but the latest in a long series of "dance heritage technologies" through history that must surely include various kinds of image technologies, both moving and still; photography; movable type; the codex; the alphabet and other symbolic systems; and even (as Allegra Fuller Snyder so astutely pointed out<sup>2</sup>) cave painting. (I'm quite certain – and let this very certainty serve as evidence of my point – that I've omitted many, many previous technologies that have been important to dance.) Not only have there been technologies before "the technology" of which (we think) we speak here, but we should be certain that there will many technologies to follow this one.

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<sup>1</sup> Dance Heritage Coalition; National Dance Heritage Leadership Forum, *Results of Field Survey: October 2009*. Blacksburg, VA: Partners in Performance, 2009.

<sup>2</sup> Catherine J. Johnson and Allegra Fuller Snyder, *Securing Our Dance Heritage: Issues in the Documentation and Preservation of Dance*. Washington, DC: Council on Library and Information Resources, July 1999, p. 5.

I hope the reader will forgive my beginning with, and spending so much space on, these abstractions, and will furthermore not be put off by my questioning of terms that, presumably, we all believe we understand, more or less. But as we begin our more concrete discussion of digital tools and means for the preservation, discovery, dissemination and promotion of dance, I would ask first that we continually question what, precisely, we mean when we speak of “technology,” and second that we try to see ourselves and our understanding of “technology” in the larger context of past and future technologies. I see one of my principal tasks, as an outsider invited to this insider discussion of dance heritage, in similar fashion to that of Paolo Mangiafico, Duke University’s recently-installed “digital strategist,” whose new and unusual job description is “to inspire the technology planners to adopt approaches that are holistic and have a long-term view.”<sup>3</sup>

## **1. Technologies Appropriate to the Tasks at Hand**

The assigned topic for this paper is the creative use of technology to expand the ease, quality and diversity of access to dance information for all. While I hope to address all of these points, at least in passing, I believe that every image digitized and hosted on a dance heritage website with even minimal descriptive data, every catalog record or finding aid created, and every document posted on a website serve this end. We are all fortunate to be part of a rather well-indexed and accessible web, with a number of simple and well-known interfaces. Of course, we can complicate this access for our users by hiding files within databases, or by providing insufficient descriptive metadata. But on the whole, digital collections of interest to the dance heritage community will grow somewhat of their own accord, and access to them will inevitably increase as we do our jobs correctly. I do not believe that there exists a single technological solution that will do this for us – nor is there one solution that would fit all of these needs – but there are aspects of all solutions to which we should certainly pay heed, and this is what I would like to focus on here.

As we consider appropriate technological approaches to make any sort of use (be that preservation, documentation, dissemination, etc.) of any sort of dance heritage artifact (be that textual, notational, visual, tangible, etc.), we ought to have a reasonably clear idea of what sort of technology we’re engaged in. I would like to propose just two categories, my own oversimplification of the landscape: first, “library technology” (by which I mean, more or less, standard MARC cataloging, archival finding aids, simple online exhibits, and other objects intended for general distribution); and second, “digital humanities technology” (by which I mean limited-scope research projects and specialized tool development not necessarily intended for general adoption, theoretical explorations of new technologies, and so on).

“Library technology” appears to be proceeding apace in the dance community: dance collections in libraries and archives seem to have proper MARC records that are contributed to (and thus discoverable in) union catalogs (e.g., OCLC / WorldCat); and archival finding aids, created according to solid EAD standards,<sup>4</sup> appear to have a good home on the DHC website. The world

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<sup>3</sup> Marc Perry, “How to Prepare Your College for an Uncertain Digital Future.” *The Chronicle of Higher Education*, December 13, 2009. Online at <http://chronicle.com/article/How-to-Prepare-Your-College/49455/>.

<sup>4</sup> On the general importance of XML standards (as EAD is), see below.

would certainly benefit from lots more of the same: calls for more repositories to create and contribute their dance-related collection finding aids to the DHC; perhaps more development of the existing DHC finding aid search engine,<sup>5</sup> including perhaps the incorporation of links from the finding aids directly to any digitized objects described in them.

These digitized objects themselves live best in the sorts of context-rich digital exhibits that dance collections have been creating for at least a decade. The number of stunning digital image collections in dance heritage – granted, of varying degrees of sophistication, but all quite worthwhile – are just a Google search away, even for the interested non-specialist. But what else could be done by the dance historian to employ these solid and reasonably well-known technologies to best advantage? In my experience, nothing beats the judgment of a professional human in guiding even the most miraculous-seeming search algorithm toward collections of most value: not only should dance collections continue to create their own digital resources, but they, and the DHC itself, should also be generous in linking to those of other libraries and archives, selected and annotated and categorized according to professional tastes and standards.

“Digital humanities” research in dance also appears to be active and well-informed: a few projects of particular note (that is, a few that I have encountered and found interesting in my own corner of the digital humanities vineyard – obviously not an exhaustive list) are ARTeFACT (University of Virginia and elsewhere)<sup>6</sup> and “Decentering the Dancing Text” at the University of Surrey.<sup>7</sup> These projects are both theoretically and technologically sophisticated, and while they may perhaps be of more limited interest (“academic interest” – though not in the derogatory sense!), I believe that the dance heritage community as a whole would benefit greatly from broader exposure among digital humanists, where this sort of dance research would find a most welcoming home.

Something that would not be at all desirable is to privilege one of these types of activities at the expense of the other. The tried and true (and superficially old-fashioned – though surely technological!) “library” functions are still, and always will be, immensely important for the preservation and dissemination of dance heritage; at the same time, seemingly “higher-tech” (“cutting-edge,” higher-risk, etc.) technologies, though exciting and important and worthy of support, should not be mistaken as substitutes for the other.

In the enhancement of distribution channels for all sorts of digital dance materials, both descriptive records and digitized primary sources, the simple Internet search engine is our best ally (aided, as discussed above, by wisely curated research guides and lists of high-quality resources). Although the DHC finding aids database should certainly be expanded and fostered further, given its unique concentration of a particular data type, for many other kinds of digital dance materials, solutions demanding “centralization” of all online dance resources seem less

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<sup>5</sup> The current search engine is the very solid XTF, developed by the California Digital Library. See <http://danceheritage.org/xtf/search>.

<sup>6</sup> Jama S. Coartney and Susan L. Wiesner, “Performance as digital text: Capturing signals and secret messages in a media-rich experience.” *Literary and Linguistic Computing* 2009, 24: 153-160; doi:10.1093/lc/fqp012.

<sup>7</sup> <http://www.surrey.ac.uk/Dance/Research/DDT/>. Accessed December 1, 2009; project active 2002-2003, under the leadership of Janet Lansdale, Khurshid Ahmad, and Deveril.

important, and perhaps less functional given our current ways of using the Internet, than an organic collection of richly interlinking resources.

## 2. Technologies that Might Outlive the Present Moment

As you approach technologies for describing and digitizing your precious collections, please remember that non-proprietary public standards provide the best guarantee for future success. The most important of these for digital humanities collections generally are, for any sort of textual data, one of the numerous varieties of XML (whose other strength, in addition to it being a well-documented standard, lies in its being an extensible meta-standard), and JPEG2000 for images.<sup>8</sup> As I have become acquainted with many of the DHC's technical reports, I sense that the dance community's efforts with regard to standards and file formats have been exemplary. I would encourage both vigilance and widespread dissemination and explanation of these standards via "best practices" documents, workshops, and so forth. Although the jury is still out on some of the particulars of preservation best practice (especially for more complex media like moving images), those standards like XML which are well established should be adhered to carefully and thoughtfully.

The tendency to forget, or to misunderstand, the dangers of technological obsolescence is endemic. Note these telling paragraphs from the Dance Notation Bureau's website:

In the very near future, the Dance Notation Bureau Library catalog will be accessible online. [...]

With the advent of new computer technology, the recording of dance through Labanotation has evolved from pencil and paper to LabanWriter software. Recently, some notators have moved the process even further by experimenting with CD-ROMs, combining notation with the music and supplementary information all on one little disk. It may not be long before the issue of lack of space to house vast amounts of paper may be mitigated by this new technology, and the DNB Library will evolve into a more streamlined repository responsive to the needs of the 21st century dance community.<sup>9</sup>

Let me hasten to add (because these are your colleagues) that I quote this website not at all to ridicule or criticize it; the technological goals expressed here are both generally admirable and extremely widespread across the (chronically under-funded) humanities and library disciplines

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<sup>8</sup> Preservation formats for moving images are still very much the subject of debate in the digital library community. Motion JPEG2000 has been recommended in "Digital Video Preservation Reformatting Project: A Report" (Media Matters, LLC; The Dance Heritage Coalition, 2004), but as recently as 2007 the media preservation librarians at the New York University Libraries, which host one of the most prominent of such efforts in the United States, were saying that preservation of digital video still lay "a little further down the road." See an interview by Hannah Frost in *AIC News*, vol. 32, no. 4 (July 2007), American Institute for Conservation of Historic and Artistic Works, available online at [http://cool.conservation-us.org/coolaic/sg/emg/library/pdf/frost/2007-07-frost-media\\_preservation\\_profile.pdf](http://cool.conservation-us.org/coolaic/sg/emg/library/pdf/frost/2007-07-frost-media_preservation_profile.pdf).

<sup>9</sup> Dance Notation Bureau, Inc. "The Future of Our Library." <http://www.dancenotation.org/DNB/library/index.html>, consulted December 1, 2009.

with which I'm familiar. I have no idea how up-to-date this site is,<sup>10</sup> how well it reflects current reality, or under what circumstances it was created. What I wish to point out, though, is its optimistic-sounding combination of ever-future goals that sound at once a quarter-century overdue (the completion of an online catalog) and unattainably futuristic (a sort of Utopian paperless repository) – all the while relying on technological solutions that become dangerously obsolete almost as soon as we mention them (e.g., the CD-ROM – of which I have literally hundreds of utterly non-functioning exemplars in my own library's collection).

Probably the best hedge against nearly inevitable technological obsolescence is the standard, but there are clearly times – when the data are of such a specialized nature, as perhaps is the case for computer-edited Labanotation – when closed or proprietary (that is, not standards-based) file formats are required, or at least very convenient. But even in these cases, I would advise investigating the creation of some sort of standards-based, archival-quality output or interchange format – say, an XML schema for Labanotation, accompanied by a “plug-in” or some other sort of converter from, say, LabanWriter files. This even seems like the sort of project that a dance-inclined computer science graduate student could do as a research project. Of course, only a dance specialist can judge the relative importance of preserving Labanotation digitally as compared with preserving actual printed notation. But it's not difficult to imagine other purposes, aside from preservation, that would make a human-readable, machine-searchable (e.g., for data mining), broadly interchangeable file format for Labanotation or any other notation system.

There are many other dangers (aside from technological obsolescence) that are specifically inherent in the technologies we often choose (or that are chosen for us) – that is, far from being a solution, “technology” is the very source of these issues, which did not even exist in the pre-digital collections. In response to these dangers, fortunately, there have been successful technological solutions devised especially over the past decade or so. Two worth mentioning briefly here are digital rights management (DRM), and catastrophic loss of digital objects that exist in a single copy (say, on one institution's web server).

DRM is one of the most fundamental “preventable” causes of technological obsolescence of CD-ROMs. But DRM can also negatively affect other media and file formats, for example, PDF files that are locked with unnecessary security, DVDs that are region-specific or otherwise copy-protected, and a host of other future inaccessibilities imposed in the name of content “protection.” While we have little control over the use of draconian DRM in the commercial sector, I would encourage cultural heritage collections to use other means for the protection of intellectual property if necessary. The best documented, most flexible, and easiest to understand of these is a social, rather than purely technological, solution (although its thoughtful technological implementations are an additional boon): the Creative Commons license.<sup>11</sup> I believe that battles against piracy waged on the technological front are not winnable, and that their most likely casualties (legitimate users, both present and – especially – future) are much greater than any short-term protectionist benefits that may be gained in their use.

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<sup>10</sup> I also have *at least* several dozen web pages, for which I bear full responsibility, that are woefully out-of-date, so I cast no aspersions on this aspect of the DNB site either!

<sup>11</sup> <http://creativecommons.org/>

Loss of truly ephemeral digital files is more difficult to counteract. A regular backup regime for every host server is of course important, but there is more that can be done. One of my favorite efforts is the LOCKSS project (“Lots Of Copies Keep Stuff Safe”),<sup>12</sup> an open-source effort that began with the preservation of e-journals, but is adaptable to include other digital materials as well. Its basic functions include distributed caching of files (on servers in multiple libraries around the world) from a single source (say, a publisher), automated cross-checking of file integrity among the caches, and automatic serving of the files in case of a failure in the principal source. While it may not be immediately obvious how the LOCKSS system could be adapted and adopted by the dance heritage community for non-journal materials, it’s worth considering LOCKSS or some other collaborative effort to ensure the preservation of content that is important to the entire community.

### **3. Technologies within Our Means**

All technology solutions are expensive both to implement and to maintain, whether in time, money, headache or heartache – but some are expensive in more manageable ways, and the Open Source and Open Access efforts have produced many of these for the cultural heritage and library communities. While open-source technologies may not be completely free to operate (as expenses begin to accrue immediately after the free download), the fact that their development and support are distributed broadly among (potentially) like-minded people and institutions often makes them an attractive choice. There are elegant open-source offerings in nearly all classes of software that may be of interest to the dance heritage community, including content management systems, presentation software, web server software, databases, and editing tools.

But we all must function not only within our financial means, but also within our technical means. Those of us who come from a humanities or arts background are often – though not always, of course – naturally more inclined toward work in our own fields than we are toward technology. While I should not risk any impression of condescension in this particular forum (and especially not in writing), I don’t mind reporting that in my own work as an intermediary between “techies” and “softies,” I often have occasion to tell colleagues that it’s perfectly acceptable *not* to love technology! (I of course never advise the technologists to give up on literature or music if they find it not to their liking. Grossly unfair of me, I admit.) In my experience, implementing new technologies usually demands much more time and energy than I imagine at first glance, from which I draw a lesson to plan as conservatively as possible, and to allocate resources as liberally as possible. All this said, I believe – public opinion to the contrary – that it is generally easier to teach a little bit of programming to an interested dance historian than to train a programmer in the subtleties and depths of dance history. Judging from the burgeoning ranks of digital humanists and librarians, there is a rapidly increasing number of people who can “do” both, and the professions would do well to encourage these people to engage in both early in their careers.

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<sup>12</sup> <http://lockss.org/>

#### 4. Technologies for the People, by the People, of the People

Finally, I would like to make more specific suggestions regarding something I've hinted at frequently above: the many human and social aspects of any technology implementation. A first observation in this vein is that no automated technology, no matter how advanced, can ever substitute for professional curation of a collection, or for human understanding and expression of historical and cultural context, or for selection of objects for exhibit, or for annotation, or for interpretation. I hope this is just a sermon for the choir, but it bears repeating (to our deans and directors as well as to ourselves) that technology for the humanities is always a supplement, and never a substitute. Likewise, digitization should be a supplement to, not a replacement for, an original object. Yes, we want digital images of Ballets Russes scenery to be accessible on any computer screen anywhere in the world – but in this process we all understand that the original artifacts become more valuable, *not* less valuable, and certainly not more disposable. The same truth holds for those who fear that greater dissemination of digital surrogates will harm the market for their original work. Experience has consistently shown precisely the opposite: the more people know (and see, and hear) of an artist's work in the digital realm, the more they want to know, and the greater becomes the value, of the "original."

In addition to the importance of considering contributions by individual scholars or artists in any humanities technology implementation, there is also an important social, organizational and professional element which, as I indicate above, could bring great advantage to the very specialized dance heritage community. While the field certainly has its own conference and publication venues, and while one would hope that topics with a digital or technological focus would be welcome there (though such acceptance is certainly not uniform across the disciplines), please remember that there is a well-established, deeply interdisciplinary community of digital humanities scholars and practitioners who would welcome entrants from among the dance community. Although humanities computing is considered to have begun in the text-centric fields of literature and linguistics, many less-textual disciplines have made major contributions, including musicology and music history, archeology, game and software studies, and others. Some of this field's principal publication venues are *Literary and Linguistic Computing* (which recently published the ARTeFACT article cited above) and the online *Digital Humanities Quarterly*,<sup>13</sup> and among its professional associations is the Alliance of Digital Humanities Organizations (ADHO),<sup>14</sup> currently consisting of three large groups (mostly-European, mostly-Canadian, and mostly Anglo-American).

The digital library community is similarly rich in publications, associations and resources; here especially one will find friendly groups of people struggling to make technology work in deeply humanistic endeavors, and happy to share their experience. There is no need for the dance heritage community to be isolated from other communities of humanistic and artistic practice, though the practices themselves may differ.

Finally, I would recommend for your consideration the National Endowment for the Humanities, and especially its still very young (and very receptive) Office of Digital Humanities,<sup>15</sup> as a

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<sup>13</sup> <http://www.digitalhumanities.org/dhq/about/about.html>.

<sup>14</sup> <http://www.digitalhumanities.org/>.

<sup>15</sup> <http://www.neh.gov/odh/>.

potential funding source for dance-related digital endeavors, in addition to the NEA and other traditional funding agencies.

## **5. Conclusions**

I have consciously avoided mentioning too many “brand-name” technologies in this paper. As tempting as it may be to expect a simple answer to a simple question (e.g., “Drupal is the way to go for both managing your content and creating cool websites!”), I suspect that these platforms will have shelf-lives considerably shorter than the 10-year scope of the DHC’s current planning efforts. Even more importantly, though, I think that most of these “brand-names” are already rather widely known – or very easily found out – and are available for the enjoyment and experimentation of the dance heritage community. What is not often considered, though, are the deeper implications of these particular technologies; their relationships (or lack of relationship) to the standards that will surely outlast them; and the overarching importance while “doing” technology of not losing sight of the profound archival and curatorial – “heritage” – goals; the importance of planning migration paths and exit strategies from technologies that are bound to age more quickly than your precious collections ever will. (And thank goodness for that!)