DANCE AND THE USE OF TECHNOLOGY

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DANCE AND THE USE OF TECHNOLOGY

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Thesis

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CHAPTER I

INTRODUCTION

For many years now technology has been changing rapidly the world in which we live. Many people cannot wait to get the latest cellphone, computer, tablet, or camera. As new technology is developed, people are able to do more and more with one device. Cellphones are no longer just for talking. They also can access the internet, take quality pictures and video, and give travel directions. New applications are available almost weekly. Computers can be used to watch TV and movies, wirelessly. People can get directions from a GPS unit or their phone instead of a map, and books can be read on a tablet screen instead of on paper. With technology becoming an increasingly large part of everyday life it is no wonder it is not limited to information retrieval. It is also a source of entertainment.

This thesis will explore how, as the use of technology and its capabilities continue to expand in implications and opportunities, the dance world must start incorporating it more. As will be discussed in the next chapter, film technology helped bring dance to the masses through cinema and television. With the current popularity of reality television shows, dance is being viewed by growing numbers. However, as technology is changing the ways in which people access dance, it is also changing their expectations for live dance performances. In order to stay relevant to newer and younger audiences, the
concert dance world should consider incorporating technology more into performances and/or use technology more as a means for people to view performances. Technology can be used in dance as a creative tool through sensors to control music and video sequences and bringing dancers from different geographic regions together for performances. Technology can also be used in dance as a delivery system by video streaming performances to computers. These topics will be discussed in greater detail in later chapters as suggestions and examples of how dance and technology can be used together.

While much of the classical concert dance world is rooted in tradition, new audiences with new expectations demand that the art form evolve and adapt to a new environment. Integrating dance and technology is not something that will work equally well for everyone and this thesis by no means attempts to prove otherwise. It would be unwise to alienate dance-lovers who have dependably supported this art form for generations. The goal of this thesis simply is to bring attention to a current topic in the dance world and examine how and what changes might be implemented if dance companies and choreographers choose to do so.
CHAPTER II

THE IMPACT OF DANCE IN FILMS AND TELEVISION

Advances in technology, particularly film technology, have had an affect on the dance world for over one hundred years. Emerging photographic technology was applied to the study of movement in the 1880s when Etienne-Jules Marey and Eadweard James Muybridge documented animal motion using still photographs sequentially. Further developments by others in the industry soon followed, leading to the development of a camera capable of recording movement. In 1894, Louis Lumière invented the cinematograph, which combined the functions of a camera and projector. The cinematograph made it possible to record and project a moving image with one device. That same year, Thomas Edison filmed modern dance pioneer Ruth St. Denis performing a dance that involved the dancer manipulating the profile of the body by moving a full skirt around (V. Brooks 71). This historical event marked the first time dance was captured on film. Dance and film have been intertwined ever since.

In the early days of the relationship between dance and film, film was largely used to capture live performances of concert dance. Concert dance is dance that is performed live on a stage for an audience and is generally choreographed primarily for artistic value. It exists outside of any imposed context. While every art form has an
implicit financial consideration, concert dance is a perfect example of art created for art’s sake. Commercial dance, on the other hand, is dance that can be seen in films, commercials, music videos, and television shows. More often than not, it is created to support some other “mission” such as marketing, or in a fairly crass interpretation of the work, entirely to “entertain.” Dance began to be used for pure entertainment value in 1929 when Hollywood films began to incorporate large music and dance sequences into thinly plotted story-lines. These insertions of dance into cinema capitalized on the capability of film to present spectacle on a grand scale. They also provide entertaining, if artificial interludes. In the 1930s and ‘40s spectacular dance numbers provided a popular source of escapism from the deprivations of the Great Depression.

Perhaps the director most famous for this kind of work was Busby Berkeley (V. Brooks 72). Berkeley was best known for creating extravagant musical sequences in films. These films contained little dancing, emphasizing the creation of patterns by dramatically dressed choruses which moved in imaginatively designed spaces, and filmed from thrilling positions. His work can be seen in many films but perhaps the two most well-known films are 42nd Street (1933) and Dames (1934) (Billman 34-36). The popularity of this genre set the stage for the fame of featured dancers such as Fred Astaire, Ginger Rogers, and Shirley Temple who became household names. From 1934 to 1940, Shirley Temple appeared in twenty-four films and tap danced in fifteen of them, which is notable considering she was only six years old in 1934 (Frank 86-87). Music and dance numbers continued to be an integral part of popular films throughout the 1940s and 1950s. During those years dancer Gene Kelly was at the height of his career, starring
in films such as *An American in Paris* and *Singin’ in the Rain* (Billman 96). His athletic style of dancing differed from the smooth and sophisticated style of Fred Astaire in earlier films.

While dance continued to appear in films during the 1960s and the Viet Nam War, the attitude of the United States made these films seem frivolous and representative of an earlier more innocent era. Dance sequences in film appeared less and less. The decline was perhaps a Hollywood decision as large dance sequences were expensive and no longer reflected the times. Dance never completely disappeared from film and enjoyed a small resurgence in the 1980s with films such as *Flashdance, Saturday Night Fever, Footloose, White Nights*, and *Dirty Dancing*. These films, although they included great dancing, were actually about characters who danced rather than dance as an art form.

Dance in films did not become popular again until 2000 with the release of *Center Stage*. At this point in time a number of films about “being a dancer” were made. *Center Stage* stars dancers from companies including American Ballet Theatre and New York City Ballet alongside actors including Zoe Saldana, Peter Gallagher, Debra Monk, and Olympic ice skater Ilia Kulik. This film follows the lives of aspiring ballet dancers as they enter the American Ballet Academy with hopes to later become dancers with the American Ballet Company or another well-known ballet company. Films including *Save the Last Dance* (2001), *The Company* (2003), *Shall We Dance* (2004), *Mad Hot Ballroom* (2005), *Take the Lead* (2006), *Step Up* (2006), *Stomp the Yard* (2007), *Step Up 2: The
Streets (2008), Fame (2009), and Black Swan (2010) all feature dance as critical parts of the main plot-lines.

Films with dance as a central plot-line have been released almost every year since 2000 (IMDb). These films use various dance forms including ballet, jazz, ballroom, hip-hop, and contemporary (a collection of methods taken from modern and post-modern dance). Modern dance refers to a style of dance started in the early twentieth century in which the dancers are barefoot and the movements are less limiting and more expressive than those in ballet. Post-modern dance, popular in the 1960s and 1970s, took the freedom of movement a step further by incorporating more everyday pedestrian movements. Martha Graham is considered one of the pioneers of modern dance while Merce Cunningham is an excellent example of post-modern dance. Table 1 shows information on the amount of money some of the films made during their opening weekends at the box office in the United States.

Table 1.1 – Opening weekend sales for dance films (IMDb)

<table>
<thead>
<tr>
<th>Name of Film</th>
<th>Featured Dance Style</th>
<th>Release Date</th>
<th>Opening Weekend Sales</th>
<th>Number of Screens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center Stage</td>
<td>Ballet</td>
<td>May 14, 2000</td>
<td>$4,604,621</td>
<td>1,506</td>
</tr>
<tr>
<td>Save the Last Dance</td>
<td>Ballet &amp; Hip-Hop</td>
<td>Jan. 14, 2001</td>
<td>$27,526,443</td>
<td>2,230</td>
</tr>
<tr>
<td>Take the Lead</td>
<td>Ballroom</td>
<td>April 9, 2006</td>
<td>$12,051,277</td>
<td>3,009</td>
</tr>
<tr>
<td>Stomp the Yard</td>
<td>Street/Hip-Hop</td>
<td>Jan. 14, 2007</td>
<td>$25,876,318</td>
<td>2,051</td>
</tr>
<tr>
<td>Fame</td>
<td>Jazz/Contemporary</td>
<td>Sept. 27, 2009</td>
<td>$10,011,682</td>
<td>3,096</td>
</tr>
<tr>
<td>Black Swan</td>
<td>Ballet</td>
<td>Dec. 5, 2010</td>
<td>$1,443,809</td>
<td>18</td>
</tr>
</tbody>
</table>
Although at first glance it would appear *Black Swan*, the most recent film on this list, did not do as well as the other films during its opening weekend, it is important to note that it opened on a much smaller scale of only eighteen screens as compared to over a thousand for the other films. As of April 3, 2011 *Black Swan* had grossed $106,774,597 (IMDb). This is evidence that the film may have helped increase ticket sales for New York City Ballet’s production of *Swan Lake* during the 2010-2011 season.

In a *New York Times* article from February 14, 2011, Alastair Macaulay wrote,

> Will Natalie Portman be dancing “Swan Lake”? I can’t help hoping the rumors are true: that people have called the ballet box offices in New York and London with that question. Certainly the film “Black Swan” helps explain why tickets to the New York City Ballet’s performances of “Swan Lake” are selling unusually fast (C1).

It is likely that for many audience members who were prompted to purchase tickets because of the film, it may have been the first time they had seen a live ballet performance. However, it is too early to tell if these people will turn into long-term patrons of live dance.

As dance again became popular as a subject of mainstream films, it also became a popular subject of entertainment on television. With the success of reality television shows including MTV’s *The Real World* (1992 – present) and CBS’s *Survivor* (2000 – present) and previously mentioned dance films, producers realized dance could be a subject on reality television. The three most well-known television shows featuring dance are, ABC’s *Dancing With the Stars* (2005), Fox’s *So You Think You Can Dance* (2005), and MTV’s *America’s Best Dance Crew* (2008).
*Dancing With the Stars* consists of celebrities paired with professional ballroom dancers to learn routines and compete against each other each week until one couple wins. *So You Think You Can Dance* and *America’s Best Dance Crew* are also competition shows. *So You Think You Can Dance* showcases unknown dancers learning choreography in different styles of dance each week whereas *America’s Best Dance Crew* showcases groups performing hip-hop routines they have choreographed themselves.

Each show attracts millions of viewers each week to see people compete on the dance floor. On the first night of the twelfth season of *Dancing With the Stars*, 22.3 million viewers tuned in to watch the two-hour episode (Toff ‘Dancing With the Stars’).

Viewership is much lower for *So You Think You Can Dance* with 8.4 million viewers tuning in to the 100th episode (Toff “Thursday Ratings”) and *America’s Best Dance Crew* with 2.4 million viewers tuning in for the season five premiere (Gorman). Regardless, each show has developed a following and is able to return to television season after season. In a *Dance Spirit* article Kate Lydon suggests that the reasons these shows are so interesting to millions of viewers is that,

…”on a reality TV show, you don’t just see the performance, you get to peek into rehearsals and glimpse the creative process. You get to know the dancers and choreographers and slowly become familiar with their personalities, quirks and outlook on life. You get to root (and vote!) for your favorites. You become invested (36).

People seem to like the fact that they get to see the drama of the process and not just the carefully cultivated “effortlessness” of the final performance. Also, the producers of these shows recognize the value of engaging viewers by making it possible to participate by voting for their favorite dancers.
As society becomes more comfortable with and dependent on technology for everyday tasks, it becomes increasingly dependent on technology as a means of viewing entertainment. Many people enjoy being able to watch performances from the comfort of their own homes where they can record and watch them at their leisure, possibly on their large screen TVs, but also on their computers, iPads, and other devices.

The increasing use of technology does not mean that everyone is going to stop attending live performances; but it does mean that dance, like every other art form, exists in a rapidly changing technological environment. The popularity of dance, in films and television, often presented in the context of a competition, appears to be changing people’s expectations. There is now a television audience expecting to see tricks — fancy jumps, spectacular turns, gravity-defying lifts and occasional crashes — almost as if dance had become sporting events.

Whether the change in expectations is good or bad, the concert dance world is faced with recognizing and embracing the fact that new audiences may require new techniques to meet these new expectations. The most challenging issue of the changing environment is whether audience expectations are driving an evolution in dance as an art form, or whether technology has added new opportunities for creativity. In the first case there is a danger of a superficial application of technology to traditional dance forms in order to woo audiences. In the second case, there is a need to make sure that new technology is organically integrated into the creative process, in essence changing the nature of the art form itself.
In a *New York Times* article, Roslyn Sulcus, discusses how choreographer Christopher Wheeldon and his company, Morphoses, are adapting to meet audience desires. According to Sulcus, Wheeldon talks to audiences about his choices of ballets and music, holds open rehearsals, and shows short films before each work so the audience can see the creative process as well as the end product (AR1). By letting the audience in on the creative process Wheeldon is using one of the methods from dance television shows that attracts viewers and is thus tapping in to expectations created by dance in film and television.

Furthermore, the 2008 Survey of Public Participation in the Arts generated by the National Endowment for the Arts asked more than 18,000 adults about their participation in the arts during the twelve months prior to May, 2008. The results of the study include information about arts participation involving the use of electronic and digital media, including such things as radio, TV, CDs/DVDs, the Internet, and portable media devices. Based on data collected, 8% of the U.S. adult population who observed individual arts activities viewed dance through electronic media. Only 7% did so through live attendance (Audience 2.0). A 1% difference might not seem like much but the data is already a few years old and with the society’s increasing dependence on technology more recent data might show an increase in the percentage of those viewing dance through electronic media.

It seems that as a result of the findings of the survey, Rocco Landesman, Chairman of the NEA believes the arts world needs to start embracing technology more. In the first five paragraphs of his NEA “Message from the Chairman” in 2008, he stated,
In the arts, we are deeply invested in the primacy of the object and the necessity of the live experience. Technology is often seen as our nemesis—a cheaper, easier, virtual version of something real.

Many of us in the arts battle the technology invasion; performing our own version of the refrain that those who do not remember their own history are condemned to repeat it.

The radio and the record album were once thought to herald the death of live music. The VHS tape and cable television were going to end film. Photography was going to replace painting, and color catalogues were going to obviate the need for museums.

None of these innovations led to the death of the art form, but instead contributed to its spread and helped create new audiences.

So now we are faced with the Internet, social media, and other new technologies, and I believe the arts field must embrace them and integrate them into our work. Not to replace it, but to extend it (“Audience 2.0” 3).

With that idea in mind, some of the ways in which the concert dance world can embrace technology include not only a vehicle through which people view dance. Landesman also included the suggestion that techno-sensitive audiences may have an enhanced experience if technology is incorporated into live performance. Neither of these ideas is new, but for them to be truly helpful in cultivating audiences, it might be wise for more dance companies and choreographers to embrace what appears to be an inevitable future.
CHAPTER III

INTEGRATING TECHNOLOGY INTO DANCE

While advances in technology led to the invention of the video camera and helped integrate dance into films and televisions shows, more recent advances in technology have led to the incorporation of technology into the creation of dance. Combining technology and dance is not a twenty-first century idea; it has been experimented with for many years. However, as technology continues to develop and improve, there are more and more possibilities for integrating it into the process of creating and performing dance.

One of the dance companies at the forefront of the dance and technology field is Troika Ranch. Troika Ranch was formed in 1994 by Dawn Stoppiello and Mark Coniglio “to create dynamic, challenging artworks that fused traditional elements of dance, music and theatre with interactive digital media” (Coniglio, “The Importance of Being Interactive”). The pair first worked together in 1987 while both were students at the California Institute of the Arts. At the time there was a group of musicians hacking into devices such as radio-controlled cars and game controllers and customizing them for use in live performances. Coniglio, an innovator in this area was able to create software that was able to “see” information from the hacked sensory devices which were placed on
Stoppiello’s body. This then allowed her movements to control music synthesizers and other various devices (Stoppiello & Coniglio, “An Arc of Bodies and Technology”).

The system created by Coniglio became known as MidiDancer and its first use was rather basic. The first MidiDancer device consisted of two sensors attached to a transmitter (from radio controlled cars), the sensors were then taped to the arms and legs of the dancers. Each sensor was then used to measure the flexion of a joint (either the elbow or knee). The data gathered from the sensors was sent through the transmitter to a computer where the information was used to control music synthesizers. The first dance piece created by Stoppiello and Coniglio in the late 1980s was made up of four performers each wearing two sensors, one on the elbow and one on the knee. Each sensor in turn controlled a sound that would stay the same throughout the piece.

Unfortunately the early dance and music created by this method of composition consisted of unappealing robotic choreography accompanied by “bleeps and bloops” (Stoppiello & Coniglio, “FleshMotor”).

This early technology lead to technological and aesthetic advances, and using a new and improved MidiDancer, Stoppiello and Coniglio created a piece called In Plane. The concept for the piece was that they would video tape Stoppiello dancing, transfer the video to a disc, and use the MidiDancer to allow Stoppiello to control the playback of the video. Thus, they would be able to create a duet between Stoppiello and her virtual self. The new version of MidiDancer used to create this piece was made up of a smaller transmitter and eight thinner and more flexible sensors which could be placed on various joints. This new version was less restrictive and therefore allowed for more freedom of
movement within the choreography. Furthermore, for this piece joints were allowed to change their function. In other words, one joint might control the music in one section and in another section the same joint might control the playback of the video (Stoppiello & Coniglio “FleshMotor”). Subsequently they explored new ways to use the MidiDancer including, “initiating the playback of musical notes or phrases, manipulating live or pre-recorded video imagery, and controlling theatrical lighting” (Coniglio, “The Importance of Being Interactive”). The aesthetic experimentation and technical innovation of these performers have furthered the choreographic possibilities of how dance and technology can be used together.

While Troika Ranch is known for its use of technology in dance, it is certainly not the only dance company to do so. Many choreographers have incorporated technology into dance, though it has generally been for a specific piece rather than being integral to the mission of the company. For instance, in Biped (1999), Merce Cunningham used optical motion capture devices to record the moving bodies of dancers. The recording was then transferred into digital 3-D representations of the moving bodies which were then manipulated, and finally the dancers performed along with the projected animations. Using the same idea, Bill T. Jones created Ghostcatching (1999), which took dance to a virtual performance installation consisting of the projected animations shown with no live dancers present on stage (Birringer 89).

Another project which explored a way technology could be used within dance was the Stereobodies project in Manchester, England. When discussing the project, Helen Bailey from the University of Bedfordshire said,
The initial concern was to explore ways in which a representation of the ‘real/live’ performer’s body could be directly integrated into the virtual/simulated environment without having to undergo the disembodiment and translation of motion capture and the creation of avatars. We began work, in June 2006 with the CSAGE project at Manchester Computing, University of Manchester, where Martin Turner had developed a system of integrating stereoscopic video into the access grid context, as a virtual research environment (VRE)...

The research focus for the Stereobodies project was concerned with the concept of presence, and how the interrelationship of the virtual and actual dancing body in live performance that this technology offered, might provide new understandings of this relationship. From a choreographic perspective this broad aim was clarified into two compositional approaches; firstly to explore the interrelationship of bodies in space both in terms of actual pathways across and between the virtual and real contexts, and secondly, to explore physical ‘contact’ or rather the illusion of touch between performers in the real and virtual contexts (160).

To create this piece, a duet was choreographed involving five points of contact between the performers. One of the performers was then removed from the material and the second performer danced his part as a solo as if dancing with an invisible partner. The solo version of the piece was videoed stereoscopically and then projected in the CSAGE project’s virtual research environment, in life-size. The first performer then performed the duet with the virtual partner. The use of the stereoscopic technology allowed the dancers to appear as if they were performing in the same space. It even made it seem at times as though the arm of the virtual reproduction was passing over the body of the live dancer or reaching into the space between the live dancer and the audience. In order to create a stereoscopic video two synchronized video cameras are used. The video is then projected onto a large curved projection screen and the user wears special polarized glasses in order to view the three-dimensionality the stereoscopic projection creates (Bailey 161). If this technology were to become used on a larger scale in the dance world
it could change the way pieces were choreographed, changing audience perceptions regarding the use of video projections in dance.

The use of technology in dance can also provide dancers and choreographers with the opportunity to work together even if they are not in the same physical location. For example, in 2007 Pauline Brooks, a professor at Liverpool John Moores University (LJMU) in Liverpool, England started work on a project with Professor Luke Kahlich at Temple University in Philadelphia, Pennsylvania in which their students would work together on choreographing a dance. The project was made possible by studios and theatres equipped with web-cams and projection screens to connect the dancers otherwise separated by 3000 miles. When the first project began in 2007, tutors were brought in to familiarize both groups with the technology they would be using. For this project the dancers at Temple University were working in a dance studio while those at LJMU were working in a studio theatre. The use of two different types of spaces resulted in some challenges as Brooks states,

Thus, while our dancers were able to meet synchronously in time across a distance and create work together, the difference in each performance space did provide a challenge. Those in the studio space could travel far greater distances away from the camera, and because the two spaces were so clearly different when viewed on the screen, it was difficult for us to build a sense of a new unified or shared space. Perceptually, to the audience, there was a clear difference and division, which meant that artistically the work could not effectively create the illusion of ‘a new space, a third space’...(50).

Despite the challenges and limitations faced by the spaces and the technology a performance was aired through the Internet to an invited audience at both universities. Having learned from the first project, they embarked on a second project the following year. This time around both groups of students were working in black-box
style theatres which meant it would be possible for them to explore making dance in a new special “frontier.” A performance of this project was held on April 30, 2009 and is believed to be, “one of the first transatlantic university-based networked-linked performances of live and telematics dance” (P. Brooks 51). In the fall of 2009 a third project was initiated. This final project involved three choreographers creating a new dance in which a telematics performance would be combined with live dance through video-conferencing. The performance was done in the same networked-linked black-box theatres as the second project. Following the performance an audience discussion period was held between the audience, performers, and choreographers. And because of the video-conferencing technology those in both countries were able to be involved in the same conversation (P. Brooks 51).

As these examples show, working with technology is not without its challenges and limitations. In the case of the dancers working together at Temple University and LJMU, the dancers were challenged with not only staying connected to the live dancers and audience members but also to the digitized dancers and the audience members located 3000 miles away. The audience was also at times challenged to make viewing choices between the live performers and the projected performers, some found it engaging, others found it was too busy, and some did not like having to choose. It would seem that when using technology like this it is quite difficult to please everyone.

Another challenge with this project was dealing with the “cone of capture,” the area of the performance space the camera is able to view and then project. As the camera is not able to capture the whole performance space, analysis offered indicates that the
performance seen by the audience is different in the two locations. Through the use of a split screen both groups of performers are projected and in a sense can interact with each other and appear to be in the same space. Therefore, both audiences are able to view the same virtual performance. However, each audience is at the same time viewing a different live performance and thus the audience is having both a shared and a unique viewing experience.

The cone of capture also created choreographic challenges. The choreographers had to deal with making it appear as though the dancers on the split screen were occupying the same space. This challenge influenced the choreography seen in the live performance space, involving the use of close-ups, distance shots, and dancers passing through the cone of capture. The use of this technology also made it possible for them to create duets and trios between the live and projected dancers, something that was probably a new experience for many audience members (P. Brooks 52-57).

Another challenge of working with technology is that when dancers and choreographers are using networked environments there are often delays in the upload and download times of the video and sound. These delays can affect the kinesthetic perception of the audience, as what they see and hear might not be what was intended (Birringer 87). It is important for those working with this type of technology to be aware of its limitations and to be able to create a work with those limitations in mind.

Mark Coniglio, the technology expert with Troika Ranch, also has realized there is a downside in working with digital media. One aspect of digital media he likes particularly is that once something is captured by digital media, it is always the same and
it can be duplicated. However, this sameness goes against the spontaneous quality inherent in live performance (Coniglio “The Importance of Being Interactive”). Live performance has any number of variables including things “going wrong,” or varying energy levels of performers. The very presence of an audience creates a somewhat unpredictable environment for the performance. Coniglio believes,

The real difficulty is to create technologically intensive works in which the onstage media is informed and guided by the energy of the body. The media must also present it’s own sense of risk, frailty, and simple physical power. In a manner of speaking it must become a body too, equal in energy to the physical body of the dancer (“Towards Y3K: Dancer’s Digital Divide).

A piece in which Troika Ranch deals with this issue has a section in which a dancer performs with a small video camera and wireless transmitter in one hand. As the dancer performs the camera captures images of various parts of her body and the images are then projected in large scale behind her. As she dances, gestures that seem small on her body are magnified on the screen. Coniglio states, “Because this projection is directly linked to a living body, it reflects, amplifies and compliments it. The projected image becomes a body because it is an inseparably linked extension of the performer’s body” (“Towards Y3K”). In other words, because the camera and projected images are used to reflect the living body, it does not seem as foreign and out of place as perhaps other forms of technology.

Another way to make it appear as though the digital media or technology used in dance looks as alive as the performers, is to allow the performers room to improvise. Allowing them to interact with the digital media in a way they would not otherwise be able to do. However, this technique also challenges audience perceptions. Generally,
audience members used to attending performances in traditional theaters (on proscenium
or “picture frame” stages) tend to assume that each performance will be essentially the
same. In order for audiences to develop an understanding of improvisational dance, they
need to be informed in some way of the relationship between the performers and the
technology. Coniglio sums up the use of improvisation to add life to the use of
technology by saying,

…an audience’s understanding that the performer has a virtuosic command of his
or her instrument and that he or she is creating something new in the moment of
performance adds yet another layer of ‘liveness’ to the experience, which I would
argue is a core rationale for adding interaction to the mix in the first place (“The
Importance of Being Interactive”).

Technology can be used in dance in many ways, from the first stages of a piece to
the final result; however the earlier in the creative process technology is integrated, the
more effective it tends to be. It is useful to keep this in mind even if the technology is
used logistically to make it possible for choreographers and dancers to create work when
they are not physically in the same place. The use of video conferencing technology
makes it possible to connect dancers and choreographers separated geographically,
allowing them to create and perform work together. It also can be used by
choreographers who are not available for extended rehearsal periods. It is not uncommon
for choreographers, particularly those with their own companies, to work with dancers in
another company or perhaps at a university dance program. They may be able to work in
person with those dancers for only a short period of time. Video-conferencing technology
makes it possible for them to monitor rehearsals and give feedback from time to time.
While technology does not have to be part of a live performance it is perhaps a good way to engage an audience that is living in a technologically dependent world. The use of technology in dance could be particularly helpful in attracting younger audiences of people that have grown up with technology and is used to virtual experiences. This is supported by a statement from Mark Coniglio,

…the reason tools like video, interactivity, and telepresence are important is because they help to keep dance vital in a world where mainstream broadcast media is the most widely experienced channel of aesthetic (albeit popular) expression. Television is powerful because it combines imagery, sound, and editing into one stream of information that flows into the comfort of your home. Through the use of video, dance creators gain access to all of the plastic qualities associated with film (and television) including changes of scale or perspective and the extreme capability to break linear time with editing…Using such tools with dance allow artists to create layers of meaning with a density that is appropriate and necessary in the media intense world that we live – it is the vernacular of our time (“Towards Y3K”).

The use of technology can be a great tool for dancers but it is essential that it serve the creative process and the aesthetics of the product. It is important for the technology to be related to the content of the dance—to serve the core idea of the work. Dawn Stoppiello of Troika Ranch feels that there must be a link between the media being used and the context of the work. She says, “I choose the kind of sensing system based on the kind of metaphoric meaning I want to add into the piece side by side with the kind of choreography I want to see and use” (“Translation”). In other words she chooses the type of technology she wants to use in a piece based on the movement and feeling she wants the piece to have. Keeping the use of technology authentic to the artistic intention of the work is important. After all, the artistic qualities found within dance are one feature that makes it so interesting to watch. However, it would be a mistake to ignore
the technology available to choreographers in the twenty-first century. To do so would risk making traditional concert dance a “museum-like” experience, rather than one which reflects a vital evolving art form. But having said that, choreographers must guard against losing relevance, integrity, or merit in the pursuit of “techno-trickery” to draw in nontraditional audiences.
CHAPTER IV

USING TECHNOLOGY AS A MEANS TO VIEW DANCE

Using technology within a choreographed work is not something that will enhance a performance for everyone. However, there is another way for the dance world to stay connected to a technology dependent society. Through the use of video streaming technology viewers can watch a performance in a movie theater or from the comfort of their own home, thus making it possible for performances to be seen many miles from where they are taking place.

In late 2006 the Metropolitan Opera began broadcasting performances in high-definition (HD) in movie theaters across the country. This initiative, which for people entirely committed to live stage performances was anticipated to be an artistic mistake, ultimately met with much success (metoperafamily.org). According to a May 2007 New York Times article, during the first season of live broadcasts the Metropolitan Opera simulcast six operas and sold 324,000 tickets worldwide. In the article, Daniel Wakin states,

Peter Gelb, the company's general manager, said he expects the number of people who attend live Met performances in movie houses next season to match the cumulative audience for all 225 performances in the Met auditorium: about 800,000 people. Mr. Gelb also said he expects the series to make a profit, a word not often heard in the opera world (Wakin).
The concert dance world is catching up to opera thanks to the “Ballet in Cinema” program produced by Emerging Pictures. The program allows viewers to see performances from well-known ballet companies such as the Bolshoi, the Royal Ballet, and the Paris Opera Ballet (Bloom). Performances are only available at theaters in the Emerging Cinemas Network; locations and times can be found through a simple search on their website. Encore showings of the performances are also done for those that cannot make it to the live screening (emergingpictures.com).

In an interview with Julie Bloom of The New York Times in March 2011, Natalia Osipova, a ballerina with the Bolshoi Theater from Moscow, shared some of her thoughts on dance being shown in movie theaters. Ms. Osipova starred as Kitri in the ballet “Don Quixote” which was screened live in high-definition from Moscow by Emerging Pictures in about 150 theaters in the United States. Excerpts of Ms. Osipova’s March 2011 interview include the following:

I think that the big close-ups aren’t so good for dance. I think it’s better to look at it from far away. When you look at the ballet, you shouldn’t be very close; you should have more. I think though it’s really wonderful to have such a big audience, and it will be a big pleasure for all of us that you’re doing just one performance and so many people around the world get the chance to see you…I think once you get to see the production on the big screen you get to see the ballet in much greater detail and notice much more, but on the other hand it’s problematic. Our goal as a dancer is to transmit somehow, even through the screen, the inspiration, the character of this production, the particularity of this production. People say when you are in the theater you can feel the emotion, but once you’re watching it on the screen those emotions get erased. But that’s our big goal, not to let them get erased (Bloom).

It is clear that while Ms. Osipova believes that reaching a vastly increased audience is a worthwhile goal. At the same time, she recognizes that the technology involved compromises some of the best things about live, in-theater performances.
In spite of the issues of dance on the “big screen,” making live performances available in movie theaters appears to be an effective way to reach new audiences and increase revenue. Though the experience may not be as “pure” when a performance is broadcast, it is likely that people less committed to dance might be more comfortable going to a movie theater than a dance performance venue and therefore would be more likely to attend a performance in that setting. Also, while tickets for these broadcasts are likely to be more costly than a movie ticket, they are usually much less than the cost of a ticket for the actual performance.

While making performances available for viewing at movie theaters is an innovative and apparently successful idea, if the concert dance world really wants to expand viewing options the Internet is possibly the best place for it. Videos of dance are already widely accessible on sites such as YouTube; however, that medium also presents several challenges. The first issue with sites such as YouTube is that anyone can post a video for others to view. This means that people without any training or those with avocational training can post videos of themselves dancing. The problem with this is that unknowledgeable viewers may believe they are watching quality dancing. This lack of quality control on the internet is systemic, and is the reason internet research has to be done carefully. Of course this is not true for all untrained dancers as there are some excellent self-taught hip hop dancers; but for most forms of dance proper training and technique is required.

Another challenge is the quality of the video itself. While video cameras have improved over time through advances in technology, there is still the issue of amateur
videographers who are lacking in professional technique. A quick search on YouTube will demonstrate the generally low level of video technique. Professional dance companies are guardians of their brands. Their professionalism is one of their best selling points. The internet makes quality control very difficult.

Also, with advances in technology people now have the capability to videotape things in this case dance, with their cellphones. This results in the aforementioned video quality issues and another larger issue. Cellphones allow audience members to videotape professional performances without the permission of the company. These videos are often the only way a full length dance is made available on YouTube and other internet sites.

In an effort to control the quality of video on the internet, some companies, dance festivals, and theaters have their own YouTube channels on which they post videos. Most often these are only clips of performances, rehearsals, and interviews designed to market live performances. One reason only clips of dances are shown might be because of a concern that if full length dances are made available for free online, people may be less likely to purchase tickets to see the performance. There is evidence that the availability of free mass-distributed digital performances in any performance art form reaches new audiences. There is little evidence, however, that the majority of people who are content to watch performances in their own home are going to be converted into an audience willing to make the effort and commit the money to attend live performances. The implications of this fact may be that there are two distinct
audiences—one active and the other passive—that make it advantageous to provide distinctly different dance experiences.

Another reason not to put complete works on the internet is that choreographers wish to protect their work from copyright infringement. It is important to note that once a piece of choreography has been created and documented it is protected by copyright laws. However, that does not mean that choreographers, companies, and dancers want their work made readily available to anyone. After all, with videos on YouTube accessible to millions of viewers it would be very difficult to catch someone who has stolen a piece of choreography. Furthermore, if someone were caught, the time and money it would take to take action against them would likely not be worth the hassle. It is therefore much easier for choreographers and companies to try to prevent occurrences from happening.

The fear of having an entire dance on the internet is supported by an experience Dawn Stoppiello of Troika Ranch had when posting video clips of the progression of the piece *loopdive* on YouTube. Of the experience Stoppiello states,

Troika Ranch has not gone so far as to willingly put all our materials on the Web, but we are sharing clips of our performances and films and process more freely. In the beginning there was fear. Our sacred, expert world was now open to scrutiny and plagiarism by the masses. When we first put up a clip of a prototype of a film we were making, we felt a certain amount of ownership to the concept and techniques and didn’t want any of it to be stolen from us. It would seem, at this late date though, that there are no new ideas, only one’s individual take on or re-contextualizing of the ideas that exist already. At this stage of my career, it now feels more valuable to me to allow people who might never see my actual performances or films to be able to experience some version of them rather then keep them from experiencing any part of them due to our own fear of being copied. Who hasn’t been copied? Didn’t somebody important once say that plagiarism is the highest form of flattery? And in the end, by putting Troika Ranch’s work out on the web, we have received more feedback and praise and
criticism then if we limited our audience to only those who had the privilege to get their butts into a theater chair (“Translation”).

So, while Troika Ranch has not put a complete video of a piece online, the company has at least realized that it is important to make some of their work available to a broader range of people.

Although YouTube is a great website to post video clips it is not ideal for full performances. For companies wishing to make full length pieces or even performances available on the web there are other options. First, companies could have video streaming on their websites. They could either stream a performance live or have it made available after the fact. Either way, viewers could purchase a virtual ticket in order to view it. An issue with streaming a performance live is that it might not work too well for those who live in another time zone, but who wish to watch the performance. One of the best things about this technology relative to arts performances is that people across the country and around the world can view performances by companies they might not otherwise get to see. Perhaps it would be wise if both live streaming and taped performances were made available, assuming the resources were available to have access to good equipment.

In 2006 Marc Kirschner conceived of a novel idea of creating a dance programming website. That idea led to the establishment of TenduTV which first made dance videos available in 2008. Part of TenduTV’s mission was “to make dance as available as possible to audiences and students alike” (Kirschner, “Introduction/Downloads”). Although the original TenduTV’s platform is nonoperational, videos are available on sites such as Hulu, iTunes, Amazon,
CinemaNow, and Vudu by either going to the sites directly or accessing them from the TenduTV site. The cost to view the videos depends on the site, but ranges from $3.99 to rent to $15. The cost is greater to purchase the videos in high definition.

A few materials such as the DancePulp program, which features interviews with dancers and choreographers, as well as selections from the Dance on Camera Festival are available for free on an ad-supported basis. The works available through TenduTV are categorized into three categories; Live Performance Relay, which is video of live performances; Camera Rework, which is choreography originally made for the stage but is then reworked for the camera; and Screendance, which is choreography made explicitly for the camera.

The production quality of the videos depends greatly on what the platforms (sites) will accept. For example, iTunes has very strict standards and will not accept videos with flaws. According to Kirschner “the source material can be anything from full 1080p HDCAM-SR with full 5.1 or 7.1 surround audio to older Betacam and DV…We have also decided to reject any new productions that are below HDCAM quality” (Kirschner). The fact that much of the work they are presenting is available in high-definition is important, not only for the integrity of the work, but also from a viewer’s standpoint. As a viewer paying to watch a performance one would want it to be of such high quality that it is as close to actually being in the theater as one can get without physically being there. To watch a performance in which the video and/or sound is not clear would have a negative impact on the viewing experience, and reduces the likelihood of developing an
appreciation for dance. Companies and choreographers wishing to explore the online viewing option need to invest in the right recording equipment or company.

When TenduTV first started the response from the dance community was very skeptical because others had tried and failed to do something similar and there was a lack of quality filmed dance available. However, Kirschner states, “There’s been a significant warming over the last twelve months, and I have to credit our initial content partners (Dutch National Ballet and Wayne McGregor | Random Dance) for that boost” (Kirschner). With a platform like TenduTV the issue of copyright has come up but Kirschner says that while it is something everyone in the dance world fears, it is not a top concern of TenduTV. In fact he has stated,

A much bigger issue is the lack of historical documentation as to who actually owns a piece, as well as legacy contracts that pretty much bar a lot of archival content from ever really being seen. Also, the very nature of what we do actually strengthens the copyright because it increases the value of the choreographic product (Kirschner).

This further proves that while companies and choreographers fear making their work available to others online, it should not be a significant enough issue to keep them from doing so.

Initial response to TenduTV from the existing dance audience has been favorable, but there is still work to be done to reach the mainstream public. Kirschner believes this connection will start happening when works by more “known” choreographers are presented on the network. Choreographers who currently have work on the network are not as well known in the United States as they are internationally. Part of the issue here
is that international dance companies film considerably more of their work than companies in the United States, making their work more accessible.

Companies currently working with TenduTV are well established modern, contemporary, or ballet companies and their work ranges from full company pieces to solo work. TenduTV is expanding by starting to work with young emerging companies and featuring dancers with backgrounds such as jazz and hip-hop on the DancePulp programming. The DancePulp programming is free and includes interviews with dancers and choreographers, video clips, and blogs. Kirschner explains the decision to expand in this direction when he says, “Ultimately, we want as wide of a variety of programming as possible, because we need that variety so that our audiences have the opportunity to curate their own taste in dance” (Kirschner). The ultimate goal is to bring a wide variety of dance experiences to as many people as possible, letting them decide what they like rather than making the decision for them.

Inevitably, there are people who may fear making dance available online will discourage people from attending live performances but this is mostly untrue. There is evidence that this fear is unfounded. According to Sunil Iyengar, Director of Research & Analysis for the National Endowment for the Arts (NEA), “people who engage with art through media technologies attend live performances or arts exhibits at two to three times the rate of non-media arts participants” (“Audience 2.0” 7). It appears that media technologies may help some people connect to the arts, and specifically to dance. The NEA report “Audience 2.0” summarizes data that indicates that people who have limited disposable incomes, live in rural areas, are elderly, or who are part of a minority group
are all more likely to view the arts through media alone (“Audience 2.0”). Specifically the report states that,

Approximately 52 percent of adults who engaged in the arts through media alone had annual household incomes of $50,000 or less (by comparison, only 41 percent of U.S. households earn less than $50,000). Rural residents were as likely as metropolitan area residents to participate in the arts solely through media (15%). Racial and ethnic minorities were more likely than non-Hispanic whites to participate in the arts through electronic media alone (18% vs. 15%). Americans 75 years and older were more likely than younger adults to engage in benchmark arts activities through media alone (20% vs. 15%) (“Audience 2.0” 12-14).

This is shown further in the following table taken from “Audience 2.0.”

Table 4.1 – “Figure 3-9. Percent of U.S. adult population (by demographic group) that observed at least one benchmark arts performance through either electronic media only or live attendance only” (“Audience 2.0” 44)

<table>
<thead>
<tr>
<th>Participant segment</th>
<th>Media only</th>
<th>Live attendance only</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Adults</td>
<td>11.8%</td>
<td>9.5%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>10.9 %</td>
<td>8.5%</td>
</tr>
<tr>
<td>Female</td>
<td>12.7%</td>
<td>10.4%</td>
</tr>
<tr>
<td>Location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro</td>
<td>11.9%</td>
<td>9.8%</td>
</tr>
<tr>
<td>Rural</td>
<td>11.1%</td>
<td>7.7%</td>
</tr>
<tr>
<td>Race and ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>12.4%</td>
<td>5.9%</td>
</tr>
<tr>
<td>White</td>
<td>10.4%</td>
<td>10.9%</td>
</tr>
<tr>
<td>African American</td>
<td>17.9%</td>
<td>5.8%</td>
</tr>
<tr>
<td>Other</td>
<td>14.6%</td>
<td>8.7%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
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</tr>
</tbody>
</table>
According to Table 4.1, African-Americans, people seventy-five years old or older, those having no more than a grade school education, or those having an income

<table>
<thead>
<tr>
<th>Age Group</th>
<th>18-24</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65-74</th>
<th>75 and over</th>
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<tbody>
<tr>
<td>Education</td>
<td></td>
<td></td>
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<tr>
<td>Grade school</td>
<td>13.2%</td>
<td></td>
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<td></td>
<td>1.7%</td>
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<tr>
<td>Some high school</td>
<td>10.4%</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>4.0%</td>
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<tr>
<td>High school</td>
<td>12.1%</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>7.2%</td>
</tr>
<tr>
<td>Some college</td>
<td>12.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10.6%</td>
</tr>
<tr>
<td>College graduate</td>
<td>10.7%</td>
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<td></td>
<td></td>
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<td>15.9%</td>
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<tr>
<td>Graduate school</td>
<td>10.5%</td>
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<td></td>
<td></td>
<td></td>
<td>11.5%</td>
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<tr>
<td>Income</td>
<td></td>
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<td></td>
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<tr>
<td>Less than $10K</td>
<td>17.7%</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>3.4%</td>
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<tr>
<td>$10K to $20K</td>
<td>12.4%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.6%</td>
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<tr>
<td>$20K to $30K</td>
<td>17.1%</td>
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<td></td>
<td></td>
<td></td>
<td>3.6%</td>
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<td>$30K to $40K</td>
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<td></td>
<td></td>
<td></td>
<td>9.0%</td>
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<tr>
<td>$40K to $50K</td>
<td>14.3%</td>
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<td></td>
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<td>10.5%</td>
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<tr>
<td>$50K to $75K</td>
<td>12.8%</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>11.5%</td>
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<tr>
<td>$75K to $100K</td>
<td>11.7%</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>10.3%</td>
</tr>
<tr>
<td>$100K to $150K</td>
<td>8.1%</td>
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<td></td>
<td></td>
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<td></td>
<td>17.9%</td>
</tr>
<tr>
<td>$150K and over</td>
<td>5.6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13.1%</td>
</tr>
</tbody>
</table>
under $10,000 are the most likely demographic groups to view the arts through media alone. The possible reasons for this may include but are not limited to access, mobility, and finances. For example, for someone with a low income it is much less burdensome to pay $3.99 and watch a dance online on a site such as iTunes than it is to pay $40 or more to attend a live performance. Furthermore, for those that are not comfortable going to a theater or who know little about what they would see, viewing performances via media technology can allow them to watch dance from the comfort of their own homes or help them reduce their fear of the unknown and initial financial risk. In other words, someone who has never seen a live performance may experience anxiety over such things as what to wear or how to behave. That person may also weigh heavily the value of spending a substantial amount of money to see something they are unsure they are going to like. By making a smaller investment and being able to see what the event is like from a distance, that person might be more inclined to purchase a ticket to a live performance later on.

Though some people may only view the arts through electronic media, it is unlikely that this mode of experience will replace live arts attendance. According to NEA research, just the opposite may be true. The “Audience 2.0” report also stated that,

It is unclear from previous work – such as Andreasen (1991) and Ateca-Amestoy (2008) – whether participating in the arts through electronic media directly leads to live attendance at arts events. Previous research raises other possibilities: Live attendance leads to arts participation through electronic media; Arts participation through electronic media and arts participation through other means reinforce one another; and other factors – such as arts education or personal arts creation – help explain those relationships (“Audience 2.0” 25).
Further research will have to be pursued in order to understand if there is a direct cause and effect relationship between electronic media arts participation and live arts participation and what that relationship is.

Mark Coniglio of Troika Ranch also feels that while the Internet is an emerging method to view dance, it will never fully replace the experience of viewing a live dance performance. In his article “Towards Y3K: Dance’s Digital Divide” Coniglio declares,

> It is clear that the Internet and its derivatives will become the primary method by which creative content will be distributed to audiences in the coming years. Can live performance remain meaningful in such a world? This question is especially keen for dance since, of all the art forms, its visceral nature would seem completely at odds with a medium that separates the bodies of the audience from the bodies of the performers…,

> When dancers perform we see beautiful bodies that sweat and breathe hard as they perform complex, difficult, and even dangerous movements. Athletes and dancers show us the human body at its most exquisite by seeking the boundaries of its capability…What makes dance different from sport is the fact that these movements are aesthetically pleasing and may generate mood or narrative – a sublime combination of beauty and risk. It is this combination that is missing when viewing dance through what I will term here “flat media,” meaning two-dimensional representations on television or computer screens (“Towards Y3K).

For that reason, and as research shows, viewing dance through electronic media is unlikely, at least for the time being, to replace the experience of watching live dance performances altogether. The advantages of making dance available through the use of technology are likely to grow in the future. As dance reaches more people through technology, new audiences will develop and become patrons of live dance as well. In the end, the goal of bringing dance to people through technology is to expand the overall dance audience, to bring the “joy of dance” to more people.
CHAPTER V

CONCLUSION

It is clear that technology has become an integral part of peoples’ lives and as a society we have become dependent on technology for everything from simple everyday tasks to complex activities. As technology changes, we, as a society must learn to adapt to it. The arts are not immune to this trend; and, in fact, it appears that technology is opening new doors to new audiences.

Technology helps bring dance to millions of viewers through television, film, and the Internet. These developments have changed the way many people access dance. They have also changed perceptions of what dance is, or can be. The long-term effects of these changes are yet to be seen; but in the relatively short term it appears that dance in the media is developing popularity and has, in some cases such as film musicals, been the source of millions of dollars of revenue.

The concert dance world has always had a devoted audience; however, growing audiences has been challenging. Dance, as well as all the other performing arts, has always competed with sports, movies, concerts, and other entertainment and leisure activities for an audience’s time and money. Today it can be said that dance is competing with itself; that is to say that live concert performances are in competition with such
things as reality television dance competitions. In order to keep awareness of dance and its evolution over time, it is essential that the world of concert dance learn to use electronic media to address new mass audiences. In fact, it is this idea that is supported by a statement from the Director of Research & Analysis at the National Endowment for the Arts, Sunil Iyengar,

Traditional and media-based arts organizations have a mutual imperative: to continue innovating new approaches for building audiences, tapping each other’s strengths to produce a richer, more complex, and ultimately more rewarding arts experience for the public.

Not only do such collaborations make good business sense – there’s now an empirical reason to believe that media-based arts participation helps to reinforce other types of arts participation, even after accounting for other factors. It’s clear now, if it wasn’t before, that electronic media can be a gateway and not a barrier to greater arts participation (“Audience 2.0” 7).

Dance presented through electronic media does not replace live dance; it is an extension of it. It should be a way to bring more attention to the art form in hopes that more people will appreciate it, learn more about it, and want to see more of it.

But reaching new audiences is not the only issue on the table. Equally, if not more important, is to realize that new technologies provide not only a strategy to disseminate art; they also provide opportunities to develop new aesthetics. Companies such as Troika Ranch have committed to this goal in their mission statements. For this company, technology is not separate from the choreographic process, or added as a design element, it is an integral part of the creative process and a signature of the unique aesthetic of their work.

Other companies are addressing these opportunities more slowly—in some cases because of the expense of acquiring technological capability, or because the rapid
development of technology is so daunting that it is difficult to stay ahead of the learning curve. If and when companies choose to use technology as a creative tool, it is important that they do not compromise the artistic integrity of their work. The incorporation of technology must be carefully thought out and planned from the beginning stages of the work and should be as integral as the dancing itself. If technology is layered onto choreography later, as though it were an afterthought, the technological aspects will likely seem out of place and the work risks losing its artistic integrity.

How can companies and choreographers stay current on using technology as a creative tool? The answer is through education. As much of the research presented in this thesis shows, many projects in which dance and technology are incorporated have taken place at universities. By giving dance students the opportunity to learn how to use technology within dance and allowing them to experiment with it, dance programs help build the future of dance in ways they might not have imagined ten years ago.

For those who do not wish to incorporate technology into their choreography, there is still the opportunity to use it to enable artists who are geographically separated to share with each other. Through the use of video conferencing technology it is possible for dance classes to be taught by guest teachers located in other cities, states, or countries. It is also possible for choreographers to set or rehearse work with dancers located in different geographic regions. Thus the use of video conferencing technology is an important educational and artistic tool, as it expands opportunities for dancers and choreographers alike.
The third, and perhaps easiest way to make use of developing technology is to use it as a method of bringing dance experiences to more people. That is by using technology as a delivery system through the use of video streaming. Whether it is streamed to a movie theater, television, or computer, live or pre-recorded, video streaming is a powerful way to bring dance to people around the world. Advances in video streaming technology make it ever more accessible and financially viable to a large, geographically dispersed audience. As video streaming becomes more popular programs such as TenduTV and “Ballet in Cinema” could be expanded to include more companies and more forms of dance, thus casting the net for more audience members even wider by having more to offer.

While video streaming is an excellent way to use technology as a delivery system because it can cross geographic boundaries and gives people around the world access to great dance, it is also an excellent way to give first time audience members a chance to view dance in an atmosphere they may feel more comfortable in than a performance venue. Whether there is a direct link between viewing dance through technology and future ticket sales to live performances remains to be seen. It is likely that there will always be groups of people who only attend live performances, those who only view dance through technology, and those who do both. Whatever audience members choose, using technology as a delivery system is a valuable way for the dance world to stay current in an every growing technologically dependent world.

Dance, as an art form, has always evolved. The same is obviously true of technology. The collaboration between dance and technology is not new, even if in the
early days it involved only what we now think of as the traditional use of theatrical lighting. But in the last fifty years, technology has evolved at such a rapid rate that it has outpaced the way artists have integrated it into their work. Opportunities to create new aesthetics, new methods of training, and new avenues to reach audiences are very exciting in the twenty-first century. Nonetheless, it is important that technology not overpower the integrity of the creation of authentic works of art.
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