

Digitally-Integrated Intermedia

by

Luis A. Levy

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Introduction

There are three ways to approach creating a work of interdisciplinary performing arts: one person can have complete control of everything, several artists can collaborate to the fullest extent of their intuition, or they can freely improvise. The problem with the first scenario is that it takes great skill in each medium to make work that you will consider good and artists typically specialize in one medium such as music, dance, visual arts, or technology. So an artist with total control must be a jack of all trades, and master of none, or better yet, a master of all. Not only is this approach difficult, a piece of art can benefit from the influence of several creative people working together. Collaboration is the best solution, but how do we moderate that collaboration? Is using interactive technology the answer? Yes and no. It allows for the control of several things at once but there is still the question of the relationship between those things. Even in a situation of free improvisation, there is at least an unconscious connection between the separate events because art is based on our cognitive structures which are based on our experience and perception of the world. The challenge artists have when working with computers is how program the interaction in a human way. I will examine some of the possibilities in my research.

Artists seek new ways to understand and augment the work they do in the pursuit of enhancing their expression and gaining new insights into life. Today, the latest tools for augmenting and facilitating new works of art are modern digital computers and their derivatives. Computers are so ubiquitous that they are used in every field of work and study. This has led to interdisciplinary practices and research between fields within art and science. Artists today are using digital technology to unite the mediums of music, dance, and the visual arts. The idea of interdisciplinary collaboration is a product of the separation of art in the Western tradition. In the late nineteenth and early twentieth century there have been artists who called for a breaking of

these imposed boundaries on artistic practice. In this paper, I have considered four such artists' theories and work.

The ideas of *Gesamtkunstwerk*, “intermedia,” and “happenings,” are established theories of interdisciplinary art. These ideas meet in the emergent field of digital media. This paper traces the evolution of *Gesamtkunstwerk* to John Cage and his influence on his students Allan Kaprow, and Dick Higgins, and other “intermedia” artists of the Fluxus movement. It further connects Cage to the tradition of intermedia experimentation with electronic technology. By looking at examples of digitally-integrated performing arts from the year 2000 and on, we can see how the influence of *Gesamtkunstwerk* and artistic collaboration led to today's digital art practice. It will also consider the new questions that digital art raises regarding the role of the performer as an instrument and the value of computational approaches to art. The many things that have come out of this exploration have been very different from each other, yet they aim toward a common goal: the breaking of disciplinary boundaries to achieve unified multimodal expression.

Historical Examples

In his seminal treatise, *The Artwork of the Future*, Richard Wagner outlined his theory of *Gesamtkunstwerk*: “Artistic Man can only fully content himself by uniting every branch of Art into the *common* Artwork. . . . each separate art can only bare its utmost secret to their common public through a mutual parleying with the other arts; for the purpose of each separate branch of art can only be fully attained by the reciprocal agreement and co-operation of all the branches in their common message” (qtd. in Parker and Jordan, 4-5). What he was calling for was not just multimedia works, but an art practice that integrates the approaches of the separate artistic

disciplines into one work, and in doing so, features these media working together to express a common message.

Intermedia is the field of art that studies where the separate artistic disciplines meet. In every artistic discipline, artists have created works that blur the boundaries of their own discipline. Intermedia is not a form or a movement but a development in art that brings us to a deeper understanding of the connections between the mediums and how individual mediums impact us psychologically. Dick Higgins described “intermedia,” a term he coined in 1965:

Is it possible to speak of the use of intermedia as a huge and inclusive movement of which dada, futurism, and surrealism are early phases preceding the huge ground-swell that is taking place now? Or is it more reasonable to regard the use of intermedia an irreversible historical innovation more comparable to the development of instrumental music than, for example, to the development of romanticism? (qtd. in Packer and Jordan, 32).

Today, the word “intermedia” has come to be synonymous with the terms “performance art,” “anti-art,” and “neo-dadaism” which are used to describe the work of artists associated with the Fluxus movement of the 1960’s and 70’s. Their works were examples of intermedia, but today there exist intermedia works that do not reflect the subversive art ideology of the Fluxus movement. Dick Higgins spoke of his contemporary Allan Kaprow’s “happenings” as a good example of intermedia.

A “happening” is a piece of art in which the form is unique to itself. In Kaprow’s 1965 essay, “Untitled Guidelines for Happenings,” his first point is that “the line between art and life should be kept as fluid, and perhaps indistinct, as possible.” His second point was to say that happenings should be derived from anything but the arts. He went on to explain why:

Thus it is not that the known arts are ‘bad’ that causes me to say ‘Don’t get near them’: it is that they contain highly sophisticated habits. By avoiding the artistic modes there is the good chance that a new language will develop that has its own standards (qtd. in Packer and Jordan, 281).

A new artistic “language” was developing then with the Fluxus artists of Kaprow’s generation, just as a new language is forming now in the age of digital computing. In other words, we were exploring “anti-art,” and now we are returning to “art,” using digital media to gain a better understanding of the psychological properties of and relationships between disciplines of art. Moreover, in doing so, we will discover new forms of expression. John Cage wrote about this idea in “Diary: Audience 1966, A Year from Monday:” “Are we an audience for computer art? The answer’s not No; it’s Yes. What we need is a computer that isn’t labor-saving but which increases the work for us to do” (qtd. in Packer and Jordan, 92).

In a residency at Black Mountain College in the 1940’s and 50’s, Cage, along with David Tudor, Merce Cunningham, Robert Rauschenberg, and others, developed a series of performance pieces culminating with *Theater Piece No. 1* in 1952. This piece is now referred to as the first “happening.” It featured spoken word, displays of paintings, projections of slides and video, improvised dance, and music. The artists performed these activities utilizing Cage’s concept of indeterminacy; the piece was performed without a score, although Cage made an *a posteriori* score in 1965. Because of this and other works, John Cage had a great impact on young intermedia artists. He taught Allan Kaprow, Higgins, and several of the artists associated with Fluxus at the New School for Social Research in New York City. He was not only a pioneer in intermedia, but in the collaboration of art and technology.

Cage’s piece, *Variations V*, set the precedent for interactive intermedia and was the first electronically integrated work. It was premiered at Lincoln Center on July 23, 1965. It was the product of a massive collaboration between Cage, Tudor, Cunningham and his dance company, Billy Klüver, Robert Moog, Nam June Paik, Stan Vanderbeek, and several other artist/technicians. Cage, Tudor, and three other composers operated tape recorders and radios as

the primary sound sources. Klüver and his team developed photocells that were aimed at the stage lights and triggered sounds when the dancers intercepted the light with their movements. Moog and his team provided antennae that also created sound when the dancers entered their field. Cunningham choreographed dance and pedestrian movement to interact with the photocells and antennae. Paik and Vanderbeek projected manipulated video of the rehearsal behind the dancers. It was the first piece in which dancers acted as co-composers of music and it set the stage for artistic-technological collaboration and multimedia art that would follow. It inspired Klüver to found Experiments in Art and Technology (E.A.T.) which later produced “9 Evenings: Theater and Engineering” and the Pepsi Pavilion at Expo ‘70. Collaborations of this sort led to the digitally-integrated intermedia of today.

Thus the Happening developed as an intermedium, an uncharted land that lies between collage, music, and the theater. It is not governed by rules; each work determines its own medium and form according to its needs (qtd. in Packer and Jordan, 32).

A happening blurs the boundary between art and life because it has no set structure, other than the structure that each individual happening is given. A happening, contrary to what Kaprow said, can consist of performing arts. It seeks to blend the art forms into each other and digital media may be helpful in doing so. One way to blend the art forms is to connect them so well that it is not clear how to categorize an action. For example, during a performance in which a performer’s movement triggers sound playback or synthesis, is the performer creating a work of dance or music? Both, but it is done by using gesture. That gesture is then translated by the digital media into music while we perceive it as dance. Their body then becomes an instrument by using the digital media to create something else. Musicians and dancers have attempted to create this illusion in their throughout time, but digital media may be able to help us understand the relationship between music and dance in quantitative methods that we may be able to apply

to make more compelling work. If we can understand something well enough to express it numerically for a computer to use, we can compose or choreograph to more effectively realize our visions.

Recent Examples

Integration begins at the theoretical level. One example of integration is Geoffrey Edwards' and Marie Louise Bourbeau's use of image schemata to connect dance and music in their production of Monteverdi's aria *Lamento d'Arianna*. "Image schemata" is a term used in cognitive studies to describe universal structures rooted in our spatial learning and based on our bodily interactions that we use to conceptualize ideas that have no intrinsic spatiality. In 1987, philosopher Mark Johnson made a list of fifty image schemata under six categories. Edwards and Bourbeau used Johnson's list to analyze each line of the lyrics of Monteverdi's *Lamento d'Arianna* as well as each phrase of vocal melody, and the harmonic structure. They then asked dancer and choreographer Lina Cruz to help them apply their analysis to costume design and a choreography that would be performed with the aria. The use of image schemata facilitated the integration between the mediums of music and dance as well as enhanced the emotional messages conveyed by the performers by using universal corporeal cognitive structures. There is great potential in further enhancing performance if image schemata are incorporated into computer tools for performance design.

In 2007, Stan Wijnans used the movement theory of Rudolf von Laban and the psycho-acoustic theory of Jens Blauert to compose her piece, *Sound Skeleton*. In the 1920's Laban described the "kinesphere" as the "space that a dancer can reach (while standing still)" (Wijnans, 3). It has six movement directions in three planes: median, frontal, and horizontal, or three-

dimensional space in other words. Wijnans applied Blauert's description of sound in three-dimensional space to Laban's "kinesphere" to map her "ChoreoSonic Arena." She also used Laban's division of the body as a pentagonal structure to determine the placing of electronic sensors on the dancer that were used to capture the dancer's movement. The resulting data from that motion capture was used in real time to trigger sound that was assigned to specified regions of the ChoreoSonic Arena and to each sensor by using Max/MSP/Jitter software. Wijnans activated the space with a virtual sonic body that was created by the human body. She combined two disciplinary theories to create an interdisciplinary model that was applied to a performance using digital media.

Another example of integration is the connection of music by various composers to real-time video manipulation in the 2006 set of "Visiosonic" pieces for Saxophone Quartet and moving image, *Uneasy Dreams*. Frank Millward used Max/MSP/Jitter software to create 3D spectrographic moving images that were paired with several tracks of music recorded by the Delta Saxophone Quartet. He manipulated the shape, color, direction, and speed of the images in response to the change in musical material. His manipulation was improvised. Millward wrote of his experience:

I was aware that I was organizing and structuring my approach toward practices I was very familiar with as a studio musician and composer. As an improviser I was building my database of 'licks'. Instead of relying on an intuitive physically based response, I was thinking the playing of the instrument – numerating my actions – the visual rhythm became calculated – a digital reading. I was using both kinesthetic and cognitive means in tandem (Millward, 9).

Millward integrated the approaches of musical improviser and video artist. Millward was able to blend the approaches of two different disciplines while operating as both a performer and a composer. He related his experience working with multiple mediums at once to the act of having a conversation, which is a multimodal form of communication. The music relates to the voice,

the moving image relates to facial expressions, the composite rhythms created by the combination of music and moving image relate to body language. Millward's interdisciplinary experimentation with digital media brought him to a new understanding of how our perception and creation of art is based on our cognitive models of life.

Beyond Sound, video, and movement, stage design is another aspect of a performance that can be integrated. Stefanie Kuhn wrote about augmented scenery through the use of motion capture in André Werner's opera, *Marlowe: The Jew of Malta*. In this adaptation, Niccolo Machiavelli is the main character. His control of the virtual scenery and virtual costumes symbolizes his power over the other characters. Machiavelli's gestures control the change and movement of projected scenery, as well as colors and textures that project upon the characters. They all begin the opera in white, infrared-reflecting costumes that allow them to be tracked and projected on. Machiavelli's eventual loss of power over the other characters is symbolized by his loss of power over the scenery and their costumes when they take off the white layer to reveal a black layer which cannot be projected upon. Kuhn also discussed the role of performer as an instrument:

Machiavelli's body processing the scenery aims towards an object status; it is an instrument to achieve a specific outcome. In contrast, the actual media-object, the scenery, tends towards the status of a performing subject, since the virtual architecture is based on plant-growing algorithms that are generated in real-time. The scenery reacts not only on the performer's movement, but also interacts with him, for example by 'resisting' his triggering movements (Kuhn, 6).

The performer's gestures were embodied by his environment; by enabling this, the media helped express the message that the composer wanted to convey.

Digital data can help us to measure aspects that are qualitative in quantitative ways. Composer Roger Reynolds premiered his piece for orchestra and electronics *The Angel of Death* in 2001. It was composed for a study in which some members of the audience used slider-boxes

to indicate the familiarity of the musical themes in reference to themes heard earlier in the piece and their instantaneous emotional reaction as they listened. The piece was performed in two versions in which the occurrences of two thematic sections were switched in time. The audience used the slider-boxes to indicate their reactions to both versions of the piece. Researchers used that data to understand how large-scale musical forms are perceived and what aspects of the compositions were striking at any moment. Integration is achieved through our artistic approach, not through the use of digital media. However, it is important that if a digital process is used, it is executed in real time because performance happens in real time; life happens in real time. If we want to improvise with digital media then we need to find a way to design the interface and program the software in a way that captures the essence of a natural phenomenon. The real time survey done for *The Angel of Death* is important because it is an example of using a digital medium to measure a qualitative phenomenon in order to better understand it.

Significance of Study

Gesamtkunstwerk is not a theory for multimedia, but for integration. Wagner and many others preceding him already composed multimedia. Opera, theater, and ballet are multimedia genres that have existed in different forms across the world and throughout time. What sets Wagner's theory apart is that he sought to make art that fully engages our perception the way it is by our daily experience with the world. Our perception and our interaction with the world are augmented by digital media, which gives artists a new way to reflect the schemas of our perception. It can potentially help us to illustrate the connections of various art disciplines based on our cognitive structures. It has the potential to be liberating, but can it ever truly be successful in enhancing our artistic expression? It is capable of incredibly precise measurement but art is

full of imprecision and the indeterminate. *Gesamtkunstwerk* and “intermedia” are areas that warrant further study and development. They will be ever-present and ever-changing as new forms of media become available. My future research will be in the cognitive science of art’s perception and creation. I hope to use that knowledge to program digital media so that it may be used to achieve augmented and integrated interdisciplinary performance.

Research Methods

In order to form a practical model of digitally-integrated intermedia a theoretical model of multimedia art cognition is needed. My plan is to first research existing theories of cognitive structures that may be applicable to art. Such fields include somatics, psychoacoustics, and psycholinguistics. Within the field of somatics I will start with the theories of Laban, Alexander, and Feldenkreis. Blauert provides a good starting point for psychoacoustics to go further into the cognitive neuroscience of music. I will look for psycholinguistic schemata that go beyond those based on sensation and go into those based on interpersonal communication and internal dialogue. I hope to find visual representations of those cognitive models so that I may represent the connections between the studies in a composite map. The goal of this research will be to apply it to a multimedia artwork that uses real-time human-computer interaction and hopefully conveys a relatable, if abstract, narrative to the audience.

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