Integrated Creativity: Transcending the Boundaries of Visual Art, Music and Literature

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ABSTRACT

The author provides a historical look at artists, musicians and performers who have crossed the traditional boundaries of artistic expression, incorporating modes of expression outside of their core disciplines. Today, the multidimensional studio provided by the computer is a natural environment for the evolution and development of integrated creativity in which artists can synthesize different forms of creative expression.

New directions of artistic expression are multidimensional, integrating sound, vision, speech, touch, gesture and body movement. Artists, traditionally educated in one mode of creative expression, such as music, theater or the visual arts, are now exploring and experimenting with art forms that weave media together to reflect the complexity of the human experience. Aesthetic sensibility emerges in the artistic expression of ideas and feelings, permeating any media the artist chooses. Historically, there have been artists, musicians and writers who have crossed the boundaries of their traditional media to incorporate their experiences in other media. They were innovative pioneers of an *integrated creativity* in which multiple modes of creative expression are combined.

Today, the computer can provide a unique interdisciplinary studio in which artists and designers create with forms that involve differing dimensions of human experience. Using computers, artists and designers create sonic, vocal and musical compositions that integrate drawings, typography, photographs and animation. Integrated creativity is a multifaceted process in which contemporary artists can work fluently with visual images, sound images and animated images, as the boundaries between modes of expression blur.

KINAESTHETICS

Art is reflective of life experiences by exposing, questioning and reaffirming these experiences. Consequently, artwork should embody different modes of human interaction and communication. However, these modes of interaction and expression have become separated or fragmented in the arts. Composers create sound images or landscapes, visual artists create visual images, and writers create written or spoken texts. Further segmentation occurs as photographers limit themselves to photographing; painters, to painting; and so on. Marshall McLuhan attributes this segmentation of sensory perceptions to the invention of print and the printing press. He says that our ability to think and feel 'kinaesthetically', in such a way as to bring hearing, seeing, tasting and touching together, has diminished with the development of print. In his book, *The Gutenberg Galaxy* (1962), McLuhan identifies the invention of printing as the key to modern consciousness. Printed text channels human minds along straight, linear ways of thinking, while preventing kinaesthetic thought and feeling [1]. As the printing press evolved, written text became a predominant means of communication. In print, words became divorced from related modes of expression, such as voice, gesture, dance, song, and from animated behaviors, such as rituals and storytelling. According to McLuhan, "Imagination is that ratio (balance) among the perceptions and faculties which exists when they are not embedded in or 'outered' in material technologies" [2].

When each individual sense becomes locked in a technology, it becomes separated from the other senses. This portion of one's self closes, as if it were locked in steel. Prior to such separation, there is complete interplay among sensory experience. This interplay or synesthesia is what I mean by integrated creativity. To further explain this issue of fragmentation, McLuhan quotes from the poem "Jerusalem" by William Blake:

> The Spectre is the Reasoning Power in Man, and when separated / From Imagination and closing itself as in steel in a Ratio / Of the Things of Memory, It thence frames Laws and Moralities / To destroy Imagination, the Divine Body [3].

Blake makes it clear that when sense ratios change, people change. And the balance of sensory perceptions changes when any one sense or bodily or mental function is externalized into a technological form. This fragmentation inhibits the expression and communication that integrates our sensory experiences.

The computer presents us with a technology that differs from the single-task character of the printing press, as it is a multidimensional, interdisciplinary processing and communication machine. It can be used to create text, sound landscapes, musical compositions, visual images, animation and interactive programs for business, education, recreation and new art forms. The use of this interdisciplinary technology can re-establish a humanistic ratio or balance

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Fig. 1. Wassily Kandinsky, "That", illustrated poem from his artist's book *Sounds*, 1912. This book is one of the earliest known twentieth-century artists' books. Kandinsky created the poetry and the woodcuts during his emergence into abstraction [30].

between the senses. The next generation of artists is being educated to express ideas in a multidimensional manner involving sound, voice, visual images, text, gesture, touch and movement. The computer system thus facilitates the development of integrated creativity.

Vibrations of the Soul: A Change of Instruments

There are precursors to this type of integrated artistic expression. Innovative artists in the past have had the vision of multisensory art forms. For them, creative expression was an integrated process in which various combinations of elements were used for artistic expression. Artistic sensibilities, as the perception of harmonic relationships, do not emerge from a medium, rather they emerge from an artist's consciousness and are evident in the media in which the artist chooses to work. Wassily Kandinsky was one of the artists whose work crossed traditional boundaries to integrate different modes of artistic expression. Although the art forms he used were completely different externally—for example, visual images, sounds, colors and words—the cores of these methods of artistic expression were wholly identical to Kandinsky as "delicate vibrations of the human soul" [4]. When an artist finds the appropriate means, it is a material form of the soul's vibration, which he or she is forced to express. Kandinsky produced a synthesis of music, movement and light in his stage composition *Der gelbe Klang* (The Yellow Sound). He spoke of this work as a "small example of synthetic work" [5].

Kandinsky's experimentation with the integration of different modes of artistic expression is also exemplified in his book *Sounds* (Fig. 1). This is one of the earliest examples of an artist's book—at the time of its publication (1912), books in which both the text and the illustrations were created by the same artist were rare. In the introduction to *Sounds,* Kandinsky discussed his use of different modes of artistic expression. "This is, for me, a 'change of instrument'—the palette to one side and the typewriter in its place. I use the word 'instrument' because the force which motivates my work remains unchanged, an 'inner drive', and it is this very drive which calls for a frequent change of instrument" [6]. Emphasizing that the artist's spirit is not related to the media but to the creative process, he said, "Language no longer functions as a keyboard, the word frees itself from the stock taking of reality, and a combination of words materializes into a thing that approaches painting and thus returns to that material form with which the painter is familiar. In short: the object here is not the elementary red, but the result of the artistic act" [7].

Expanded Composition in Music

The multidimensionality of the creative process is also evident in the work of some music composers. The best-known example of a composer using integrated creativity is Russian composer Alexander Scriabin (1872–1915). The artistic atmosphere in Russia in 1903 was imbued with the idea of the synthesis of visual and aural components. Artists aimed to achieve a synthesis of new media involving light projections and electrified sound. At the same time that Kandinsky was formulating his ideas of synthesis of sensory stimuli, Scriabin asserted the significance of audiovisual polyphony in a symphonic poem titled *Prometheus* (1910). In *Prometheus,* Scriabin included scores for piano, orchestra, organ, a wordless chorus and a *clavier a lumières,* which was an

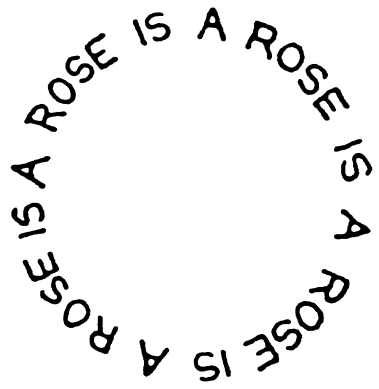

Fig. 2. Gertrude Stein, "A Rose is a Rose", 1939. Stein found a regenerative potential of language in the repetition and rhythm of the sounds of words. She was dismayed with the flatness of overworked nouns and created ways of releasing nouns from this limitation and making them fresh [31].

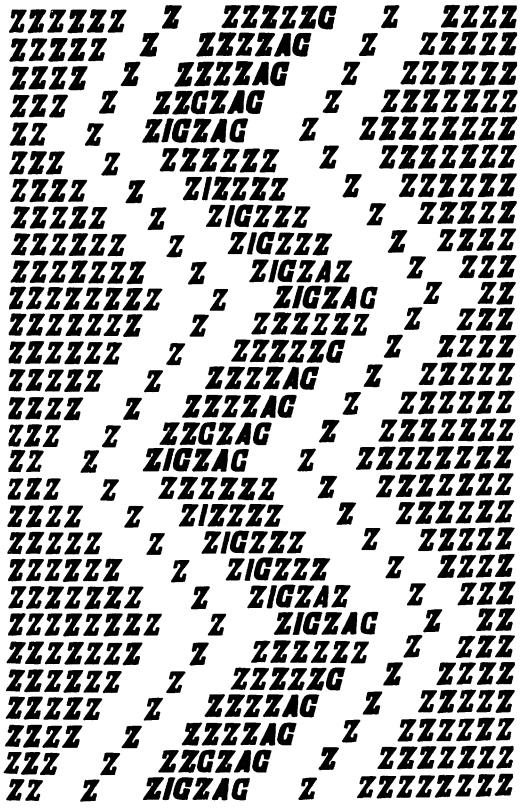

Fig. 3. Mary Ellen Solt, *"ZIGZAG"*, audiovisual poem. The line of solid *Z*'s can be distinguished from the patterns of rhythmic *Z*'s. The final line of solid *Z*'s can be read with a continuous fall in pitch. In reading this poem, the word 'zigzag' should emerge sharply with an impression of thrust and counterthrust at a rapid tempo [32].

imaginary instrument used as part of a standard musical notation that specified not sound but intensely colored light. With it, color changed in unison with tonal dynamics of the piece in accord with a system of color-tonal associations created by the composer. As Scriabin composed, he saw colors in association with notes and chords. This is called synesthetic perception. In *Prometheus,* he did not duplicate sound with color—his purpose was the organization of color into complex spatial patterns that would interact with music in complex counterpoint relationships. He was interested in the juxtapositioning of sound images with changing spatial images that reflected changes in the projections of colored lights. His work involved the synesthetic pairing of diverse sensory stimuli—the integration of sound, space, color and imagery in time. Later, he created an even more ambitious score for a ceremony of spiritual cataclysm, which included a ceremony of music, poetry, light, perfume and dance, and was to be performed in a temple in the Himalayas [8].

Schoenberg was another composer with the vision of integrating various sensory experiences into performance. His score for *Die gluckliche Hand* (The Capable Hand) (1910–1913) included original words, music, scene design, costumes and detailed instructions for lighting that was closely allied with the music [9]. Schoenberg added another dimension to his creative work—his self-portraits, painted during the years of expressionism, were recognized by Kandinsky and other members of the Blaue Reiter group. Schoenberg was an artist possessed by a vision that demanded expression unlimited by form—what mattered to him was the vision, not the technique or medium, but the truth [10].

LITERATURE: INTERCHANGEABILITY OF DIFFERENT SENSORY EXPERIENCES

The synthesis of typically isolated sensory expressions is also found in literature. In 1857 Baudelaire referred to the interchangeability of colors, perfumes and sounds in his poem "Correspondences". The second stanza reads:

> Like distant echoes in some tenebrous unity / Perfumes and colours are mixed in strange profusions / Vast as the night they mix inextricably / With seas unsounded and with the dawn's delusions [11].

Similar to Scriabin's association of sound with color, Arthur Rimbaud associated colors with alphabetic vowels. With his poems "Vowels" and "Alchemy of the Verb" (1873), he emphasized the 'verbalization' of emotional currents, basing his work on the interchangeability of different sensory experiences. Rimbaud said, "I invented the color of vowels! . . . I might invent some day or other, a poetic verb accessible to all five senses" [12].

There have also been a series of writers who have focused on the sound of text through the use of the voice. Their work is called 'sound poetry' or 'sound art'. In this type of work, which is meant to be read aloud, artists are concerned with language that coheres in terms of sound rather than syntax or semantics.

Gertrude Stein, for example, "wove prose tapestries based upon repetition rather than syntax and semantics" [13]. She was interested in the resonance and reverberation of sounds and the feelings that emerge through her sound landscape. Her words cohere in terms of stressed sounds, rhythms, alliterations, rhymes, textures and consistencies in diction—linguistic qualities other than subject and syntax [14]. She seemed preoccupied with the "sensuous materiality of words". Her circular poem "A Rose is a Rose" is shown in Fig. 2. Her interests lay in the presentational rather than the representational in language. In her experiments she noted that "once one elects to use words, it is not possible to make no sense at all" [15].

Many artists have considered their work to be literary 'intermedia', positioned between language arts and music. Sound poetry is a fusion of avant-garde works involving poems, scores, scripts and detailed performance instructions. Artists, such as Arleen Schloss, use the voice as an instrument

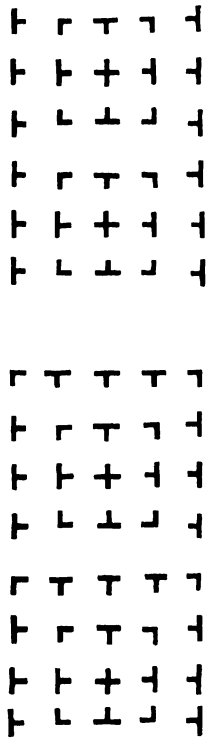

Fig. 4. Mary Ellen Solt, "Moonshot Sonnet", 1968. Solt has pushed the boundaries of poetry until there remains only visual content without language or text referent and without sonic content. In this poem, she created a language of visual form by using the symbols used by NASA for marking locations on photographs of the moon [33].

in performances that include audiotape, videotape, slides, fire and print [16]. Charles Dodge develops 'speech songs' by synthesizing real speech and then overlapping and repeating speech patterns through computer processing. He envisions this work as electronic drama or opera theater for radio [17].

Mary Ellen Solt adds a visual component to sound poetry. Her poem *"ZIGZAG"* is an audiovisual poem. The printed page vibrates as *Z*s are repeated, rhythmically interspersed with the words zig and zag (Fig. 3). In this poem, the words do what they say. Solt integrates two modes of creative expression in this poem by weaving the meaning of the words with their shape and form on the page, resulting in a reverberation of sound through space. Solt links sound poetry with visual poetry, emphasizing language as image.

The branch of poetry called 'concrete poetry' attempts to create visual images with words, underlining the meaning of the words. Concrete poets have extended the definitions of poetry by exploring words or letters in ways that do not necessarily have any meaning. Solt, author of *Concrete Poetry: A World View* (1968), has pushed the boundaries of her poetry until there is only visual content without language or text referent and without sound content. In her poem "Moonshot Sonnet", she creates a language of visual form by using the symbols created by the National Aeronautics and Space Administration (NASA) for marking locations on photographs of the moon (Fig. 4). She says this is a "supra-national, supralingual+" sonnet about current developments in the technological culture of space travel [18].

Collaboration

In Paris in 1913, Sonia Delaunay and Blaise Cendrars collaborated on a large 'poem painting', *La Prose de Transsiberien et do la petite Jehanne de France,* in which Cendrars created the text and Sonia Delaunay created the *pochoir* image. *La Prose de Transsiberien* is a 'simultaneous book'—the reader takes in text and image simultaneously; the eye travels back and forth between Delaunay's colored forms and Cendrar's words (Fig. 5). The reading of this giant poem painting became a performance [19]. These artists were the forerunners of the development of current trends toward multidimensional, interdisciplinary artwork that demonstrates integrated creativity.

John Cage was a leader in integrating voice with traditional music constructs, expanding his unique scores into innovative performances. This artist and inventor continually ignored the traditional boundaries of artistic expression. Early in his career, he said, "My attitude then . . . was that one could do all of these things—writing, painting, even dancing" [20]. His exploration and experimentation transcended the boundaries between literature, visual arts and music. During his residency at Black Mountain College, he organized and orchestrated a theatrical performance in which he created the performance score using 'chance' methods, leaving freedom for the performers for improvisation during the performance. During this performance Cage read one of his lectures, Merce Cunningham danced throughout the audience, David Tudor played the piano, Mary Caroline Richards and Charles Olsen read their poems, Robert Rauschenberg played scratchy records on a wind-up phonograph using a horn loudspeaker, and two other people projected movies and still pictures around the room [21]. In this performance, theater came close to being synonymous with life, offering the opportunity to "imitate nature in her manner of operation" [22]. Cage's artwork involves the combination of various sensory experiences. For Cage, the boundaries between different modes of artistic expression were malleable or even invisible. Examples of Cage's 'scores' are shown in Fig. 6.

Kandinsky was continually interested in developing a new kind of art—music-kinetic art. He began with the transformation of his paintings from figurative, representational art into abstract lyrical forms that were "genuine music for the eyes". In the context of his work, he felt that "spirituality is achieved by introducing motion. Only by gaining motion can abstract forms be filled with meaning and become spiritual or human". Music-kinetic art, like music itself, is an intonational art; and intonation apart from motion does not exist. If music is linked with the intonation of human speech and other natural sounds, then the dynamic plasticity of light must be substantiated equally by the intonation of human gesture. The human body is only an instrument of visible music. In the past, there has always been an integration of music, word and dance. For example, in Hindu aesthetics, this syncretic harmony is preserved in the notion of *sanghit,* in which both music and word are perceived equally by the ear and by the eye. In the past, aural and visual music were always considered to be integrated. Kandinsky envisioned this integration as he explored the objective regularities of the synthesis of music and painting. He even studied 'color hearing'. By anticipating methods of audiovisual polyphony—a combination of independent but harmonizing experiences [23]—his work provided the basis for the development of what he called music-kinetic art.

Interactive Art and Computers

These artists, musicians and poets provided models for creating multidimensional art forms using computers. The computer can serve as an integrated studio; thus, the artist has the ability to create and integrate different sensory experiences. New multidimensional art forms are beginning to evolve that express feelings and ideas in various sensory modes simultaneously. This new art will be a vehicle for integrating experiences, for re-establishing the kinaesthesia that McLuhan fears was lost with the invention of printing technology.

One example of an interdisciplinary, multisensory contemporary artwork using computers was seen in my interac-

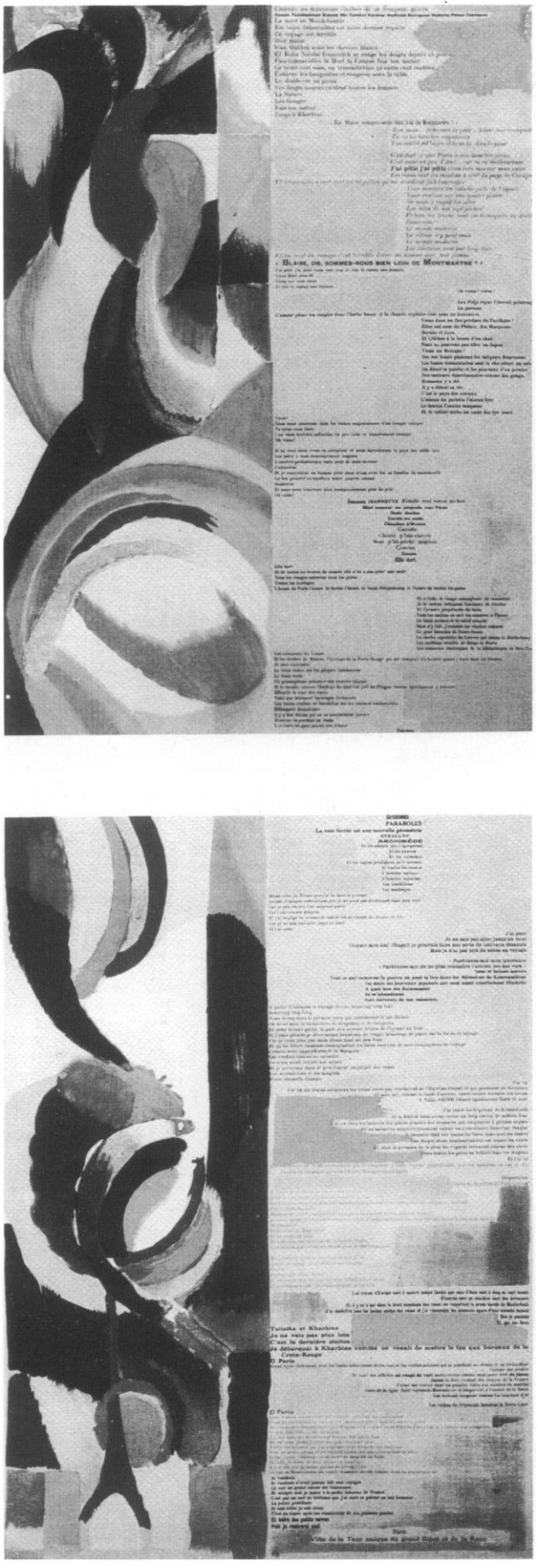

Fig. 5. (left column) Sonia Delaunay and Blaise Cendrars, details of *La Prose de Transsiberien et do la petite Jehanne de France,* collaborative poem-painting, 81.75 × 13.75 in, 1913. (Bibliothèque Nationale, Paris) The text was written by Cendrars, and the stenciled gouache illumination was done by Delaunay [34].

Fig. 6. (below) John Cage, performance scores: (a) *Music for Marcel Duchamp* (1947), (b and c) *Concert for Piano and Orchestra* (1957–1958). (Copyright Henmar Press, New York)

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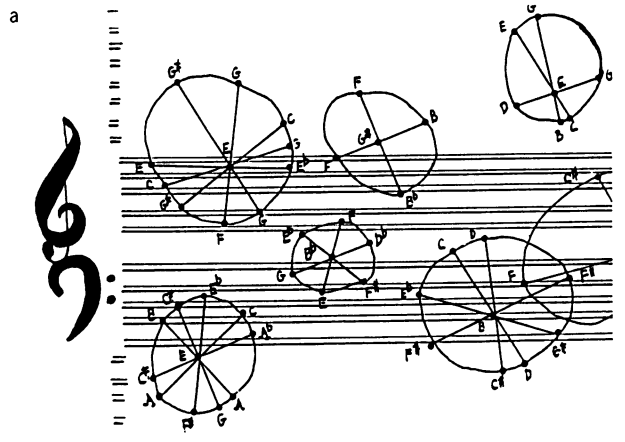

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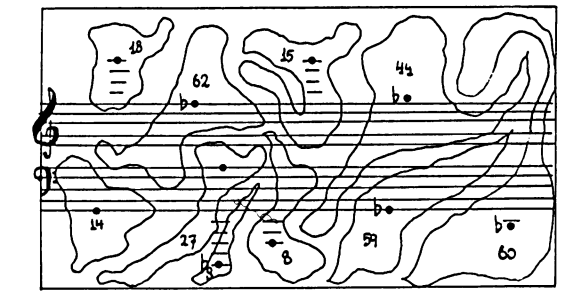

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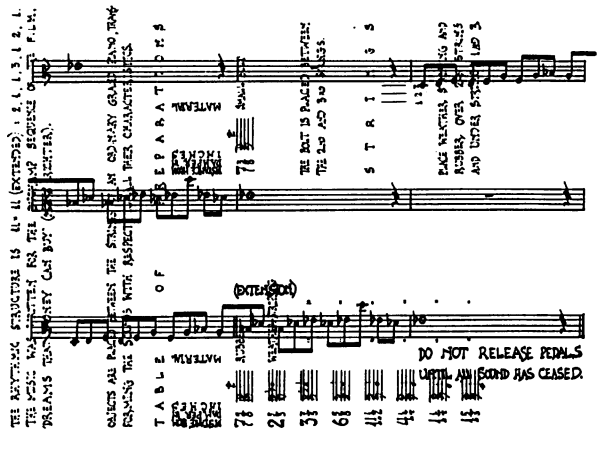

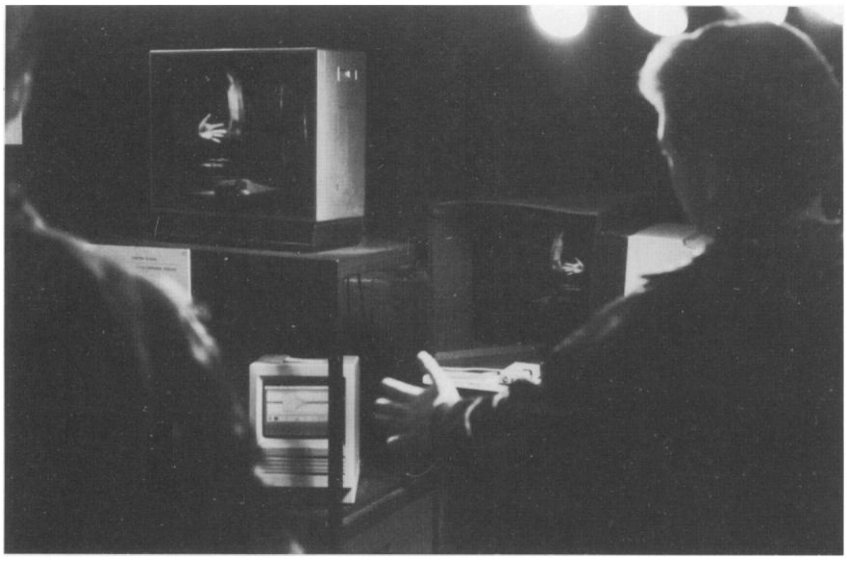

Fig. 7. Joan Truckenbrod and Glen Picher, *Expressive Reflections: Reflective Expression*, interactive installation, 1988, from the exhibition Images du Futur, Montreal, Canada. This 'electronic mirror' captured the participant's voice and visual image simultaneously, transformed them and then played them back for the participant, giving them a transformed view of themselves comprised of their own voices and images.

tive installation *Expressive Reflections: Reflective Expression*, which I created for the 4-month exhibition Images du Futur, in Montreal in 1988 [24]. This electronic 'expressive mirror' captured the viewer's voice and facial expression simultaneously (Fig. 7). My intent was to provide participants with new perspectives of themselves that included both visual and sonic dimensions. To do this, I used a video digitizer and a sound digitizer simultaneously to capture the voice and picture of each participant. I developed a computer program to transform the sound sequence and the visual image into new sonic and visual imagery. Each participant was invited by my digital voice recording to participate in the installation by reciting a poem, conversing or singing a song. Their response was recorded using an audio digitizer. At the same time, the participant looked into a two-way mirror with a video camera behind it and their face was digitized by a color-scanning video digitizer. The computer transformed the sound sequence by interchanging portions of the sound sequence and by changing its octaves and speed. The computer repeated the sound sequence for the participant in several different ways, based on previously programmed processes. By experimentation with the scanning video digitizer, viewers created various transformed views of themselves. Thus, they simultaneously experienced a transformation of their singing or speech and of their visual image. The participant was in control of the visual changes of their images, while the installation provided the audio transformation. An example of the image distortion is shown in Fig. 8. This installation had a sense of playfulness about it, as people tended to repeat the process to explore different visual and sonic images of themselves.

Electronic technology provides a multidimensional landscape for creative expression. Electronic media are alive, titillating, experiential. The elements of this new landscape are multiplicity, simultaneity, interactivity and transmission, or communication. Artists create, synthesize and combine with different media using this technology. The computer is not rooted in one medium and is thus beyond media. It is like the hub of an interrelated network of devices and experiences. Video digitizers and optical scanners facilitate visual interaction with computers, while sound digitizers allow artists to capture any type of sonic image or sound sequence. These visual and sonic images can be infinitely transformed and synthesized. In addition, electronic gloves, headgear, body suits, pressure-sensitive pads and gestural devices allow artists to capture the speed, path and personality of a gesture, body movement or movement in nature, sculpting in time and space, communicating form as well as movement to the computer. Emotions can also be transmitted to a computer through the use of alpha- and beta-wave sensors. Thus, the computer provides a multifaceted, experiential studio in which artists can synthesize visual images, sound sequences, body movement and emotions. These possibilities stimulate artists to create integrated artworks involving these dimensions of human experience. In addition, the computer is responsive, allowing artists to create installations and performances that involve the participation of the viewer [25].

Telecommunications is an interactive form of creative expression that involves the synthesis of visual images, voice, music, live video, animation and gesture. Telecommunications involves the interaction of two or more people or groups of people, located at distant

Fig. 8. Joan Truckenbrod and Glen Picher, *Expressive Reflections: Reflective Expression*, interactive installation, 1988, from the exhibition Images du Futur, Montreal, Canada. The participant's picture was captured using a scanning video digitizer with a video camera hidden behind a two-way mirror. Participants distorted their images by their movements.

geographic locations on earth or on space shuttles orbiting the earth. This process creates the sense of an intimate telespace that is occupied by all of the participants simultaneously, interacting as if they were sharing the same space. These events may utilize the whole body, vision, voice, sound, text and motion. The other senses of touch and smell are active in each individual space but are not included in telespace. Computers are used in a teleconference to create and transform sound and images and to propel images through space. The challenging aspect of telecommunications as a form of artistic expression is that the actual medium is communication or the transmission of information. The transmission signal becomes the 'brush' that paints the images throughout the world.

Integrated creativity translates artistic sensibilities into artwork that mirrors the human experience by skillfully combining a variety of forms of artistic expression. Kandinsky, Scriabin, Cage and others created artistic experiences in multiple dimensions of human expression. Moholy-Nagy said that art is the language of the senses. In *Vision in Motion,* he discusses the notion of 'simultaneous grasp' as a creative performance involving seeing, feeling and thinking in relationship, not as a series of isolated phenomena [26]. Cage said that, unlike print, "electronic media condition us to the multiplicity of simultaneous perceptions of which we are capable" [27]. Using a computer, artists can create visual images, text, sound, voice, music and gesture, choreographing them into synthetic landscapes. "Computer Art is holistic in its simultaneous use of image, sound and text." A new art form emerges that involves images, sound, and text separately and in combination [28]. The interdisciplinary computer studio facilitates creative expression in modes of experience that reflect the human sensibilities. This is a unique opportunity for artists to counter the fragmenting effects of past technologies by creating a synthesis of experiences using electronic technologies.

Not only can artists make statements individually in each of the areas of imaging, animation, kinetics and sonic composition, but the synergism of the computer studio allows artists to create experiences, such as interactive performances, installations, telepresence, teleconferences and virtual-reality environments, that involve a number of these components simultaneously. Computers offer artists the potential to convey the complexities of environmental, cultural and political issues by layering and choreographing images, text, voice and sound in a manner that parallels the fabric of contemporary life. Computers allow artists to create intimate, interactive relationships with their environment by synthesizing a multitude of sensory stimuli and sculpting this artistic sensitivity and perception into new art forms [29].

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26. See Moholy-Nagy [12] p. 153.

27. See Schmitt [22] p. 16.

28. See Hardison [18] p. 4.

29. See Truckenbrod [25] p. 102.

30. Kandinsky [6] pp. 34–35.

31. Stein's text follows: "But and that is a thing to be remembered you can love a name and if you love a name then saying that name any number of times only makes you love it more, more violently more persistently more tormentedly: When I said. / A rose is a rose is a rose is a rose. / And then later made that into a ring I made / poetry and what did I do I caressed completely caressed / and addressed a noun." See Jo Anna Isaak, *The Ruin of Representation in Modernist Art and Texts* (Ann Arbor, MI: Univ. of Michigan Press, 1986) p. 107.

32. *"ZIGZAG"* has been performed by Kalvert Nelson, who set up a rhythmic pattern of *Z*'s from which the word 'zigzag' gradually emerged, as he followed each step in the visual design. He also raised the pitch of his voice at the beginning of each section. This reading was recorded and superimposed upon itself four times to create the feeling of a round, or canon. Fran Sygg choreographed the taped version of the Kalvert Nelson reading of *"ZIGZAG"* for modern dance. See Kostelanetz [13] pp. 58–59.

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