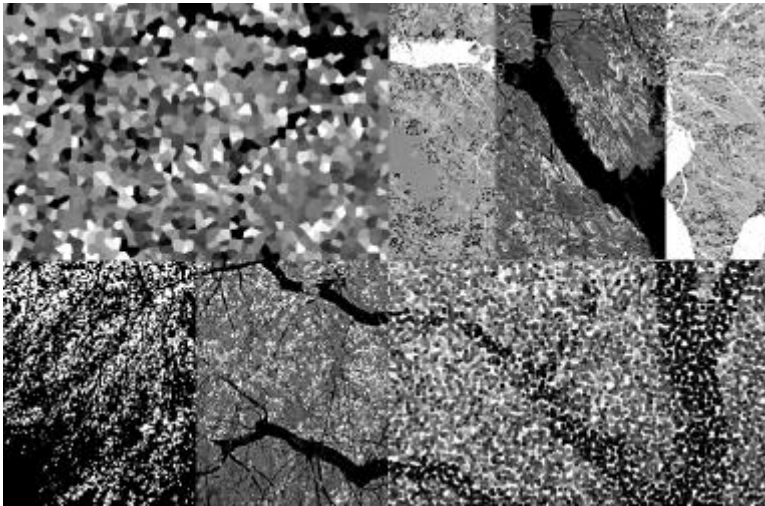


SECTION 2: PERCEPTION, ART, TECHNOLOGY



What is called a sincere work is one that is endowed with enough strength to give reality to an illusion.

Max Jacob 1876-1944,
Art Poétique [1922]

In this section, students will learn about the relationship between perception, technology and art making. Central to the discussion will be three main points.

- The idea of art as a series of illusions
- Understanding the relationship between technology and art making
- The tools artists use to create and manipulate visual images

The following separate topics will be covered:

- Art as Illusion: Space, Depth , Movement, Time
- Artistic Movements and Illusion
- Technology and the Visual Arts: An Exploration of Media
- The Vocabulary of Image Making 1: Elements of Design
- The Vocabulary of Image Making 2: Principles of Design

Introduction

Our perception of reality can be influenced by many factors. The senses provide a complex picture of the world. Creative tools give us different ways of representing our environments.

People create a “picture” of the world based on the complex information sorted and synthesized by the brain. Some tools, like the camera, provide a compelling illusion of the world we see. Sometimes tools, like the electron microscope or a satellite image, offer a

representation of reality that could not be seen unaided. Although these images are not as complete or complex as human perceptions, they expand and alter our view of the world.

All works of art are representations of reality, whether that reality is the world of the senses, or the inner world of the artist. Over the centuries, artists learned to use their tools to create images capable of fooling the eye into “seeing” depth, form, and light where none existed, such as in a painting of a road disappearing into the distance. In recent years, technologies such as television, film, and virtual reality have begun to offer amazing representations of this world, and sometimes, of worlds that exist only in the imagination. All are optical illusions. They work because artists have learned a great deal about how people perceive space, light, and form.

To the extent that works of art correspond with a common experience of reality, they can be called *representational, or objective*. Works of art that are based on reality, but distorted from our common perception of it can be described as abstract or abstracted. Works of art which have no grounding in observed reality can be described as non-objective, although the boundaries between these terms can be blurred. Regardless of the terminology, almost all works of art contain illusions.

Visual “cues” are used in all optical illusions, whether traditional, or new. A good example is the painting “*Portrait of Giovanni Arnolfini and his wife Giovanna Cenami*”, by Jan Van Eyck (active from 1422, and died in 1441). In this image, the artist created an illusion of a room, with people present in it. Through his command of the medium of oil paint, which is well suited to the portrayal of surface textures and light, the texture of clothes, the detail of wood paneling, and the delicate fall of light on the objects in the room are all accurately depicted. It is important to remember that this painting, created with consummate skill, is an illusion. It uses the same methods that were discussed in the previous section, as well as some specific techniques of representation unique to the visual arts.

All two dimensional images that suggest depth are illusions: television programs, virtual reality games, photographs, films, works of art, cartoons. Sometimes the illusion is so convincing that it seems real. Some have so much authority that it is easy to think they are the real thing. Yet, our image-making technologies are now so sophisticated that any image generated by technology cannot be assumed to have a real counterpart. What looks real can be an elaborate and compelling fiction.

2.1 ART AS ILLUSION: SPACE AND DEPTH



Painting is only a bridge linking the painter's mind with that of the viewer.

Eugène Delacroix 1798-1863
Journal [1893-1895]

Figure 2.11 This image of an iceberg is a complex illusion that fools the eye into perceiving both space and depth

Specific Curriculum Outcomes

Upon completing this section, students will be able to:

- demonstrate an understanding of four of the processes by which illusions are created in visual images
- describe and explain, using examples, the importance of linear perspective in the creation of the illusion of spatial depth
- create images that explore the relationship between space and depth.

Introduction

As you learned in the previous section, there are techniques by which image makers can fool the eye into thinking that flat objects possess depth. In this section you will discover how those techniques are used, as well as techniques to create a sense of space.

There are several techniques that can be used to suggest depth in visual images. One of them is *overlapping*. If one object is obscured by the form of another, we assume that one is behind the other. In figure 2.12 on the following page, you do not see it as a rectangle next to an upside down "L" shape. You see it as one rectangle in front of another.

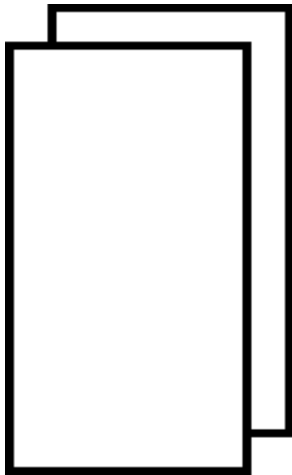


Figure 2.12 Using overlap to create the illusion of depth

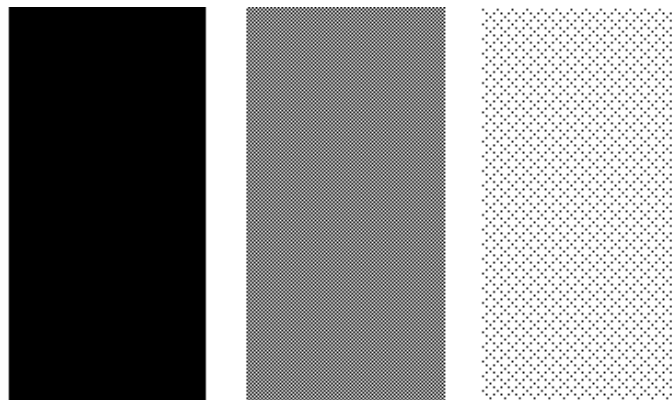


Figure 2.14 Varying intensity will cause shapes to appear to advance or recede

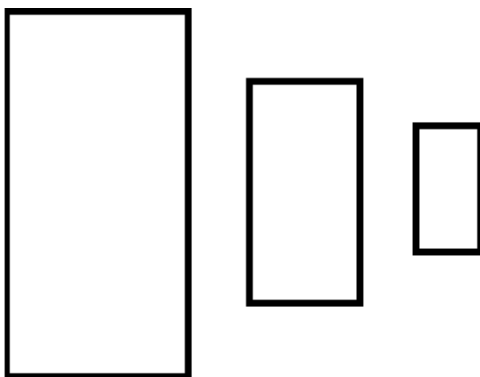


Figure 2.13 Variations in scale create the illusion of depth

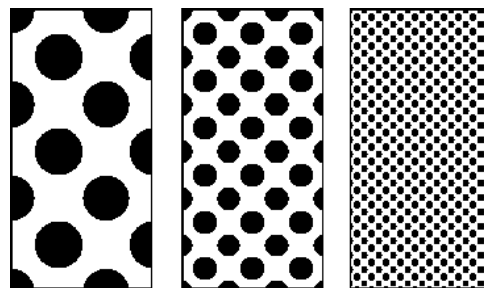


Figure 2.15 The scale of detail within an object can be an important depth cue

Another depth cue is *size or scale*. Upon seeing two similar objects of different size, you will tend to see them as the same type of object, but in different positions in space. Medieval artists used this technique almost exclusively to represent depth. The three squares in figure 2.13 appear to be receding in space.

Another depth cue is *intensity*. Shapes that are intense in colour or value appear to be closer than those that are not.

In figure 2.14, you can see that images that appear faint seem further away than those that are dark.

Another depth cue is *detail or texture*. Objects appear closer to the eye when they are more detailed, or the detail is more distinct than other objects, as in figure 2.15.

Linear Perspective

What is linear perspective? It was invented at the time of the early Renaissance by the architects Brunelleschi and Alberti. It is a comprehensive system for creating the illusion of spatial depth on a two dimensional surface. Central to the illusion of depth created by linear

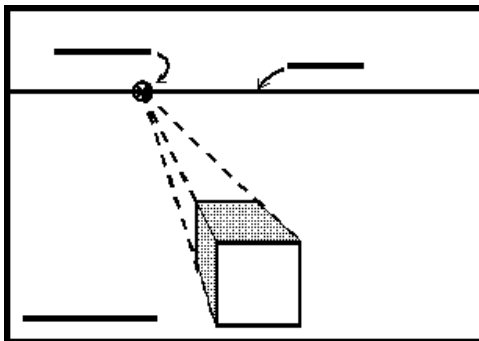


Figure 2.16

perspective is the foreshortening (or shortening lines to create the illusion of distance) of objects as they recede in space, and the understanding that parallel lines appear to converge to a vanishing point, when they are not perpendicular to the eye. If two parallel lines exist at right angles to the viewer's eyes, they will appear to be parallel. However, according to the system of linear perspective, if the parallel lines are at any other angle than a right angle to the eyes of the viewer, they will appear to converge—that is, the far ends of the two parallel lines will appear to be closer together than the near ends. If the two parallel lines could be extended, they would appear to converge at a point on the horizon (the eye level of the viewer), called a vanishing point. Anyone who has stood in a flat area in the middle of the road, and seen it appear to converge in the distance, has witnessed this effect. Since all objects, including irregular ones, can be encompassed within imaginary cubes or rectangles, the system of linear perspective made it possible to determine the exact size of objects in a composition relative to each other, and the position of the viewer. Masaccio was the first visual artist credited with using a comprehensive system of linear

together than the near ends. If the two parallel lines could be extended, they would appear to converge at a point on the horizon (the eye level of the viewer), called a vanishing point. Anyone who has stood in a flat area in the middle of the road, and seen it appear to converge in the distance, has witnessed this effect. Since all objects, including irregular ones, can be encompassed within imaginary cubes or rectangles, the system of linear perspective made it possible to determine the exact size of objects in a composition relative to each other, and the position of the viewer. Masaccio was the first visual artist credited with using a comprehensive system of linear

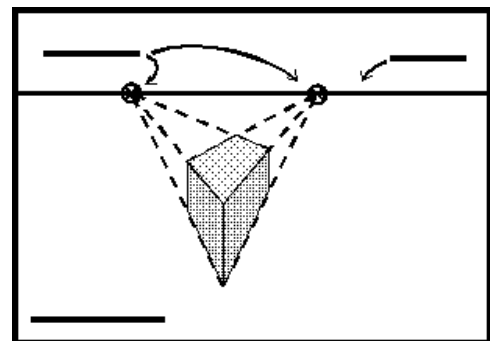


Figure 2.17

perspective in his work, although the system has been used by many artists since then. Its' use as an important tool in painting and drawing has declined in Western art in the twentieth century. A good example of a painting using linear perspective is *The Last Supper* by Leonardo da Vinci (1452-1519). In it, the artist uses an image constructed entirely around single point perspective.

At some points in history, artists have used perspective devices to help them understand the methods behind linear perspective. In a famous print by the German artist Albrecht Durer (1471-1528), an early attempt to understand perspective can be seen. The print is entitled *Artist Drawing a Lute from Unterweysung*, from Durer's *Treatise on Perspective*. In this image, the artist and an assistant are using a vertical screen and some string to plot the image of the lute on a two dimensional surface. These kind of experiments were essential to understanding the general principles of linear perspective in the early years.

All of these tools can be used by artists to create the illusion of depth. Used together, they create a powerful illusion that turns the picture frame into a window from which to view another world.

The experience of space and depth is not just one of technical tricks; it is one of perception, and culture. The visual images of some cultures possess more spatial depth than others; the works of specific time periods within a culture can contain greater spatial depth than others.

Artworks

Almost all artists, of all time periods and cultures, use some form of system to suggest spatial depth. Sometimes it is as simple and elegant as a ground line in Egyptian art, or overlapping in prehistoric or medieval art. At other times, it is a full system of complex depth cues, as in the High Renaissance and baroque periods.

Students should research visual images from a variety of periods, cultures, and disciplines, to discover the nature and use of the illusion of depth in visual images. All of them will use one or more of the techniques described above. Everything from works of art, to music videos to film clips, photographs, and advertising images could and should be examined. Other resources could include the slides of Newfoundland art for the Intermediate Art program, and images located at various sites on the Internet, such as on the website of the Art Gallery of Newfoundland and Labrador.

Discussion

Using examples from a variety of sources, discuss how image makers have used various techniques described above to create the illusion of space and depth.

Is the experience of space and depth in a visual image different from the perception of space by the human body? How?

Projects

1. In a variety of media, create images that use the visual techniques described above for creating the optical illusion of spatial depth.
2. Using a computer, create illusions in VRML software that appear to have depth, using the techniques described above.
3. Create two images of the same subject. One of them should be as flat as possible; the other should possess depth.
4. Research the techniques for creating depth and space in a particular culture or time period. Did they use the techniques described above? Did they use others? Present the results of your work to the rest of the class.

2.2 ART AS ILLUSION: MOTION AND TIME



Figure 2.21 *The blurred background creates the illusion of motion*

*“Glorious, stirring sight!”
murmured Toad...” The poetry of
motion! The real way to travel!
The only way to travel! Here
today—in next week tomorrow!
Villages skipped, towns and cities
jumped—always somebody else’s
horizons!*

Kenneth Grahame 1859-1932
The Wind in the Willows [1908], ch. 2

Specific Curriculum Outcomes

Upon completing this section, students will be able to:

- demonstrate an understanding of the processes by which motion can be created in visual images, including line, serial structures, animation, fractals, and holograms
- explain the relationship between motion and space, and motion and time
- create images that explore the relationship between art, motion, time and space.

Introduction

Motion

Motion, in a visual image, can mean several things. One of them is motion through space, such as the movement of a speeding train, or the flight of a bird. The other could be motion through time, such as the aging of a person, or the growth of a flower. In each instance, the representation of motion causes problems for the creator of visual images, because the two dimensional surface is not only flat, it usually represents an image glanced in a moment in time, and at a particular place.

New technologies, such as computer paint and animation programs, are gradually breaking down the time and space barrier of two dimensional media. New technologies make it possible to simulate motion in a variety of ways, from complex mapping and rotation of objects, to virtual reality environments. The historical tradition of static images represented from a single vantage point at a single moment in time is gradually being challenged.

How did artists of the past suggest movement? They used body position and facial expressions to animate figures, thereby imparting a sense of movement or life to the composition. A parallel might be made with mime, or live theatre. Extravagant body gestures were often used to indicate emotions such as anger, sadness, love, or happiness. A good example is the Baroque painting, *Annunciation* (1623), by Orazio Lomi Gentileschi (1562-1647). In it, an angel speaks to the Virgin Mary about the birth of Christ. What is remarkable, however, is the extremely dramatic fashion in which it is painted. The two figures are posed in very eloquent fashion, and even the setting in which they are placed looks theatrical. A strong sense of movement or life is created in this way.

Another way of creating movement is also found in the theatre: increasing the sense of drama through lighting. An excellent example is *The Calling of St. Matthew* (1599-1600) by the Baroque painter Michelangelo Merisi da Caravaggio (1571-1609). In it, he uses strong dramatic lighting at a low angle to add drama and movement to his work.

Other methods for creating movement in visual images are less dramatic, but equally effective. One is creating movement through line. The eye will tend to follow lines within a composition, thereby suggesting movement. The Swiss artist Paul Klee (1879-1940) often referred to his work as “taking a line for a walk”. His work, *Song of Love During the New Moon* (1939), shows his strong and dramatic use of line. (Curved, diagonal, broken, or irregular lines seem to suggest motion more than straight, even, continuous lines.)

Serial structures can also be used to suggest motion. A serial structure is something like a comic strip. A story, or narrative, is told through a number of panels of visual images. Comics like Superman or Batman are serial structures. In this instance, motion is not being suggested

in the individual panel as much as a linear progression of time is being described. In a similar way, works of art called diptychs or triptychs can be serial structures. A diptych is a painting in two parts, and a triptych is a painting in three parts. A good example is *The Isenheim Altarpiece* (1513) by Matthias Grunewald (1470-1530). It consists of a number of panels of a devotional theme. A more contemporary example might be a painting by Roy Lichtenstein. He creates images that refer directly to comic book panels.

Eadweard Muybridge was one of the first to use photography to document the way people and animals actually moved, providing an invaluable reference to artists, and paving the way for the modern day motion picture (many of his images show a series of images of people or animals in motion—another example of a serial structure). Artists who were influenced by Muybridge's investigations include the painters Degas and Marcel Duchamp. Serial structures can be narrative, or simple progressions. For example, the growth of a flower could be represented through a series of images showing the flower at different stages of development.

Animation is a powerful tool for suggesting movement. Although no actual movement exists, the illusion of motion is created. Animation begins with something as simple as a flip book, and extends into film and video, computer games, and virtual reality on computers. Taking a serial structure in which there is little variation between the images, and moving the images fast enough past the eye will create an illusion of motion. Today's new animation packages for computers make it possible for anyone to create short animated images.

Fractals, through their connection with organic processes, make reference to movement. Based on fractal geometry, fractals are mathematical models expressed in visual form. They appear in many cases like sea shells, or cloud patterns, or beaches—forms that occur in nature.

Holograms also suggest movement. They do this by creating images through the use of a split laser beam. The resulting image can be seen from more than one vantage point. The image appears to “move”, as the viewer selects a new viewing angle from which to perceive it.

Discussion

1. How does culture affect the depiction of movement and time? Research the visual images of different cultures, and discuss them in class.
2. Do images produced by the mass media have a different movement and time sense than art works produced a few hundred years ago? Does that tell us anything about today's culture?

Projects

1. Using any one of a variety of media, create an image that uses a serial structure to express an idea, or tell a story.
2. Using a computer animation program, create a short animated piece on the theme of "Time".
3. Create an image where it is clear that time is passing, using the techniques described above.
4. Research the use of motion by artists from different time periods and cultures. Compare how motion is created. Are similar techniques used, or are there differences?
5. Use a video camera to express the ideas of time and motion. Now create images using traditional media that express the same ideas. Look at the two groups of work: what are the differences?
6. Use a sense of the dramatic (poses of figures, lighting) to convey motion in a composition.

2.3 ART AND PERCEPTION: ART MOVEMENTS

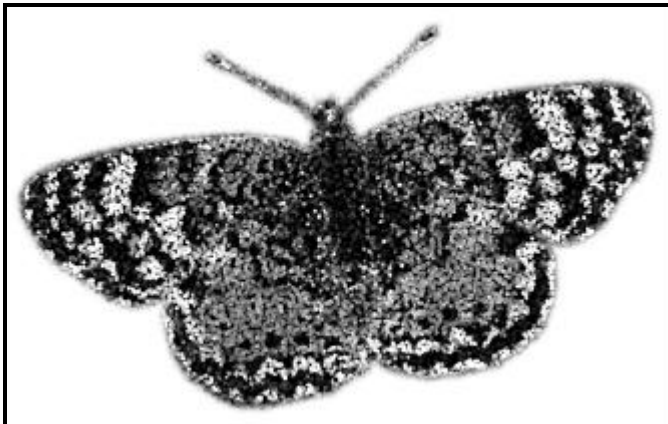


Figure 2.31 *New technologies offer the possibility of applying artistic styles to photographic images. This photograph of a butterfly was converted to a Pointillist image by using a filter in Photoshop.*

The history of an art is the history of masterwork, not of failures, or mediocrity.

Ezra Pound 1885 - 1972
The Spirit of Romance [1910]

Properly understood style is not a seductive decoration added to a functional structure; it is of the essence of a work of art.²³

Evelyn Waugh (1903-1966)
British novelist

Specific Curriculum Outcomes

Upon completing this section, students will be able to:

- define and explain some of the artistic movements that explored new modes of perception, including Impressionism, Post—Impressionism, Fauvism, Cubism, Symbolism, Futurism, Constructivism, Surrealism, Expressionism, Photo—Realism, Pop Art, Op Art, Earth Art, and Performance Art
- create images that utilize the characteristics of art movements studied.

²³

The Concise Columbia Dictionary of Quotations, 1990. Columbia University Press.

Introduction

The art of a people is also the history of that civilization's or culture's perception of themselves and the world. In Western culture, there have been art movements that have perceived the world in different and striking ways.

Some of the artistic movements that have taken place show that the creative people of that time period perceived the world in ways that are different from our own. A brief glance through an art history book will show that visual images from different time periods look different; that there is something identifiable that ties together the work from a particular culture, civilization, or time period. That distinctiveness is called a style. It reflects the beliefs of those people, their relationship to their environment, and their level of technology.

The past one hundred years has witnessed an extraordinary number of experiments in visual image making, beginning at the time of the invention of photography. From that point on, visual artists in the West, explored new modes of perception in image making at a rate never seen before. The following is a brief summary of some recent periods in Western art, and some of the characteristics of each.

Impressionism

This movement occurred in France near the turn of the century (1860's-1890). Its core members were the artists Claude Monet, Edgar Degas, Camille Pissarro, Berthe Morisot, Auguste Renoir, Alfred Sisley, and Mary Cassatt. The Impressionists were interested in the optical and dematerializing effects of light. Their images were less realistic than their predecessors, and shunned heavy applications of paint, glazes, or the use of black. They took full advantage of the technology of artists' materials of their day, and often worked quickly, on location. Their paintings were colourful, and often featured daring visual compositions, such as aerial views, or extremely foreshortened images, which may have been influenced by Japanese art and photography. The subject matter of their works was largely the world around them. A good example of an impressionist painting is *Boating on the Seine*, created in 1879 by Auguste Renoir. Renoir was well known for his rapid, loose brushwork that captured the shimmering effects of light.

Post-Impressionism

Post-Impressionism consisted of the works of four artists: Paul Cézanne, Paul Gauguin, Vincent van Gogh, and Georges Seurat. The movement took place between 1880 and 1905. They were reacting against the soft, diffused works of the Impressionists. "The achievements of these four vastly different artists laid the groundwork for a MODERN art based largely on concepts and emotions, rather than on the more objective appearance of reality." An excellent example of a post-impressionist painting is the work, *Bathers at Asnières (Une Baignade, Asnières)*,

by Seurat. Painted in 1884, Seurat's use of dots of intense colour to construct a painting foreshadows the use of dots to create images in the contemporary printing industry.

Fauvism

The artists involved in Fauvism included Georges Braque, Albert Marquet, Jean Puy, Maurice de Vlaminck, Henri Manguin, Henri Matisse, André Derain, Raoul Dufy, and Othon Friesz. Their work used intensely vivid and highly expressive colour, unrelated to the objective colour of the subject. They moved painting towards a flatter, less illusionistic surface. A good example of a Fauvist painting is Henri Matisse's *Interior at Aubergines*, painted in the early 1900s. His dramatic use of colour and strong brushstrokes are typical of the style.

Cubism

Artists involved in Cubism included Jacques Lipchitz, Pabo Picasso, Georges Braque, Juan Gris, Jean Metzinger, Alexander Archipenko and Albert Gleizes. Cubists explored new approaches to space and time in their work. Cubism investigated multiple viewpoints and fragmentation of objects. Inspiration for Cubism came from several sources, including the paintings of Paul Cezanne, and the work of so-called "primitive" peoples. A good example of a Cubist work is the painting *Bowl of Fruit, Bottle and Violin* (1914) Pablo Picasso.

Symbolism

Symbolists took their inspiration from the myths and legends of primitive peoples, and the inner world of dreams and fantasy. Closely associated with the Symbolist movement in French poetry, Symbolism flourished during the 1880's and 1890's. Notable Symbolists were Paul Gauguin, Ferdinand Hodler, Odilon Redon, Edvard Munch, Jean Delville, and Albert Pinkham Ryder. Symbolists rebelled against the prevailing trend in Western society, which emphasized the rational, scientific, and technological. A good example of a symbolist painting is the work, *Scream* (1893) by the Norwegian artist Edvard Munch (1893-1944).

Futurism

In contrast to the Symbolists, Futurists welcomed the new world, with its emphasis on technology and its ever-increasing speed. Members included Fernand Leger, Giacomo Balla, Carlo Carrà, Umberto Boccioni, Luigi Russolo, and Gino Severini. Futurist manifestos were common; they suggested new approaches for everything from painting to architecture, to dance. Some credit them with pioneering not only their own art form, but heralding the advent of performance art and twentieth century public relations too. An example of futurist work is the painting *Elasticity* (1912), by the artist Umberto Boccioni (1882-1916). The free form sense of movement and speed, combined with the cubist fracturing of images, is powerfully evident.

Constructivism

Constructivism was another artistic movement that embraced technology, and the new world that it was helping to shape. The Constructivists were all from Russia, and included Aleksandr Rodchenko, Vladimir Tatlin, and Naum Gabo. The movement existed from 1913 through to the 1920s. The Constructivists rejected the tradition of easel painting, preferring to use industrial materials such as glass, and metal, to produce abstract art that reflected modern machinery and technology. Their work does not include any reference to the world we see with our eyes. Instead, the forms are based on principles of geometry, and are concerned with geometric forms: the square, circle, triangle, cube, pyramid, and sphere. Constructivists were influenced by some of the collage and assemblage work being done in France by Picasso and Braque. A good example of a constructivist work is the piece *Monument to the Third International* (1919-1920), a model produced by Vladimir Tatlin.

Surrealism

Surrealism was at its peak from 1924-1945, and featured the artists Jean (Hans) Arp, Salvador Dali, Max Ernst, Alberto Giacometti, Arshile Gorky, Frida Kahlo, Joan Miro, Henry Moore, Man Ray, and Yves Tanguy, among many others. Surrealism was interested in the world of dreams, and the investigations into the subconscious that had been pioneered by Sigmund Freud. Dreams, madness, the absurd, the irrational, the insane, and the importance of accident and luck; all of these were of interest to the surrealists. Surrealist work was interested in representing a fantastic or super-realism. It was a conceptual approach rather than a visual one with no set type of image. An example of a surrealist image would be *Forest* (1900s), a painting by Max Ernst (1891-1976). It has a dreamlike quality, with deep blues and greens of the forest colours, and the lyrical forms of figures.

Expressionism

Expressionism was an approach to making visual images, rather than a particular movement. It concerns the use of distortion and exaggeration of line and colour to create an emotional effect rather than using an intellectual or rational approach. A number of artistic movements have explored expressionist ideas, including German Expressionism, Der Blaue Reiter group, the American Abstract Expressionists, and the more recent Neo-Expressionists. All had as part of their program a search for the spiritual and emotional, and their work was often characterized by aggressive paint handling and vibrant colours. An example of this type of work is the painting *Merce* (1961) by American artist Franz Kline (1910-1962), or *White Zigzag* (1900s) by Russian artist Wassily Kandinsky (1866-1944). Both feature a visual structure with little reference to the viewed world, and a strong, aggressive use of form and colour.

Photo-Realism

Photo-realism was a movement that gained in importance in the 1960s and 70s. It focused on the highly realistic rendering of objects, in such a way that the boundary between painting and photography became blurred. Images were often highly complex, with an emphasis on the textural quality of surfaces. The artists involved “...agreed on two principles: first, that the picture be painted, unaltered, with an airbrush from a photographic slide projected on the actual canvas; and, second, that the subject be as banal as possible.” An example of this type of work would be the artist Richard Estes, in his piece *Hotel Empire* (1987).

Pop Art

Pop art evolved in part as a reaction to Abstract Expressionism. It took as its influence mass media and advertising images of popular culture, often to conduct a critique of the values inherent in consumer society. Flourishing in the 1950's and 1960's, Pop Art often involved appropriation and collage techniques. Appropriation involves taking already existing visual images, and inserting them into other work, often in such a way that their original meaning is altered or subverted. Andy Warhol is one of the best known practitioners of Pop art. An example of a Pop art image would be his work, *Marilyn Monroe* (1962). It shows a portrait of the legendary film star, in a way that echoes advertising imagery.

Op Art

Op art was a brief movement in the early 1960s that focused on creating visual images that were optical illusions. Two of the most important Op artists were the painter, Victor Vasarely and the painter/designer, Bridget Riley. Op artists manipulated optical techniques of visual illusion to create images that appeared to flicker, vibrate, or undulate. The work is often characterized by the impression of movement in pattern created with controlled variation in size, shape, and placement of same or similar visual units. An example of Op art is *Drift 2* by British painter Bridget Riley.

Earth Art/Land Art

This form of artistic expression is an aspect of contemporary sculpture. It involves creating some kind of large scale form in the landscape so that the land itself is formed into the work. It is often reminiscent of the art and architecture of so-called “primitive” peoples. They are often based on simple organic or geometric forms, although some artists’ work in this field is incredibly complex and ritualistic. One of the most notable practitioners of earth art was the American sculptor Robert Smithson. Of all his works, the best known was probably *Spiral Jetty* (1970), a large spiral form built in the Great Salt Lake in Utah. This poetic work evokes some of the magical or religious symbols of ancient peoples around the globe.

Performance Art

Performance art is part of a long tradition of human activity that combines elements of music, dance, theatre, and the visual arts, and involves a sense of drama and ritual. Performance art frequently operates outside of the notion of art as a commodity. As a performance based activity, performance art cannot be bought or sold the way a painting might be. Performance art, as an activity, is meant to shock us out of our normal ways of thinking, feeling, and acting. Performance artist Laurie Anderson provides many examples of this in her video "*Home of the Brave*". The performance can take many forms, but tends to include activities that challenge our normal sense of how things should be.

All of these styles or forms of art making suggest different ways of looking at the world. Some artists were interested in representing the world the way they saw it—as closely as possible. Others were interested in portraying their personal impressions of reality, their feelings, or dreams. New technologies, such as the computer, allow a blending of the personal and the popular in ways that could not have been imagined even a few years ago.

Discussion

1. What is the connection between the way a work of art looks, and the perception of the artist? Do artists make pictures of things they see? Can art be about feelings? Can art be about ideas? Does art have to look like something we see to be meaningful?
2. Does art from different cultures look different? Is there a reason for that difference?

Projects

1. Research a particular style of art. Find out why it looks the way it does. What were the artists trying to express? How did the public receive their work? Did anyone complain? Prepare a presentation for the class on the artist or style you chose.
2. Create two images, in any one of a variety of media. One should be based on something you saw. Attempt to recreate it as accurately as possible. In the second image, select one of the styles discussed above, and create an interpretation of the first image in that style.
3. Using a computer, create an Expressionist or a Constructivist style image.
4. Using collage, create a Surrealist style image.
5. Using a fine point drawing object, create a Futurist style image.
6. Using assemblage techniques, create a Cubist style image.
7. Using a paint program, create an Impressionist style image.

2.4 TECHNOLOGY AND THE VISUAL ARTS

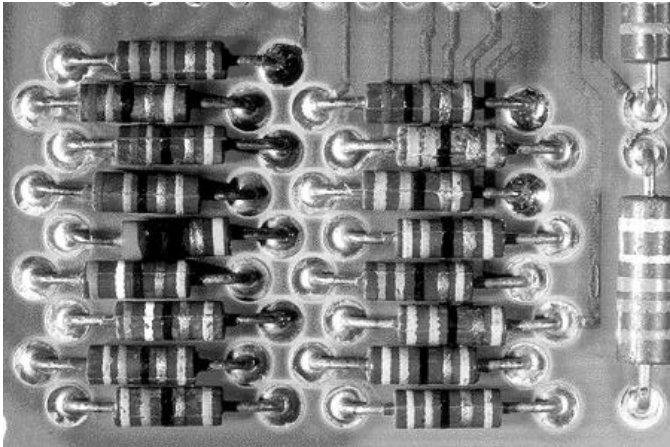


Figure 2.41 Will new technologies change the artistic process?

There are Six Essentials in painting. The first is called spirit; the second, rhythm; the third, thought; the fourth, scenery; the fifth, the brush; and the last is the ink.

Ching Hao fl. 925
Notes on Brushwork

Specific Curriculum Outcomes

Upon completing this section, students will be able to:

- demonstrate an understanding of and explain the relationship between technology and artistic production
- describe and demonstrate the relationship between technology and artistic production in the following media: painting, drawing, printmaking, photography, film and video and computer
- create images that explore the issues surrounding technology in the visual arts.

Introduction

Throughout the history of art making, artists have been involved in a complicated dance with technology. Often, it is thought that art and technology do not mix. That attitude reflects a narrow understanding of the meaning and role of technology. All tool making and tool use is a form of technology. The French sociologist Jacques Ellul suggested that technology could be defined as “the totality of all rational methods in every field of human activity”. Such a broad definition includes just about everything invented by people throughout the millennia. Although technology is considered a distinct branch of human knowledge, its influence can be seen throughout all aspects of society. In the arts, crafts, and design, all of the images we see are shaped by technology. Each artist’s tool is an example of technology, whether it be a pencil, a brush, an etching press, a videotape machine, or a computer. Each tool has a range of abilities, or potential for expression. The expressive potential of a tool, in the hands of a sensitive image maker, help to determine the final “look” of an image. Oil paint and a bristle brush present the image maker with a range of creative options that are different from a pencil and rag paper, or a computer and a digitizing tablet and pressure—sensitive pen.

As technology impacts on society at large, it also impacts on the visual arts. The arts are as much a part of human society as any other field of inquiry. For better or worse, technology impacts on society’s perceptions of itself, and of the world around it. Likewise, technology offers new challenges and opportunities in the visual arts. Just as in society at large, technological advances quickly find enthusiastic artists willing to experiment with them.

Tools and techniques are used by artists, designers, and craftspeople in the creation of images. Tools are the materials that can be used. They can be traditional, such as pencil, brush, paint, clay, chisel, or contemporary, such as a computer, an electronic scanner, a video recorder, or a digital drawing tablet. Techniques are the design elements and principles that are used to construct visual images. At their most basic level, all visual images can be reduced to a number of important visual concepts. From these concepts, an infinity of visual images can be created. Image makers are constantly working with both techniques, and the creative possibilities of their tools. The two interact with each other in highly individual and complex ways to help shape the images we see.

The earliest tools were the ones we now call “traditional”: paint and brush, charcoal, graphite, and the sculptural media: clay, and stone. Within each of those media are further divisions, representing specific types of paint, or brushes, or softnesses of pencil. Some brushes can do some things well. For other techniques, a different brush is needed. Oil paint performs differently than gouache, or tempera, or acrylic, or watercolour. In order to use tools effectively, a visual artist must be familiar with what they can, and cannot do. Effective decision making about how to create an image often begins with selecting the correct tools for the job. The following is a brief summary of some of the standard tools of the artist.

Paint

An early form of technology that is still relevant in the art, craft, and design world today are the raw materials from which we produce the colours, paints, and dyes that add so much to our world. Our ancestors discovered raw materials such as vegetable, plants, minerals, and other substances that could be manipulated to create colour, and could then be applied to clothing, skin, or hard surfaces such as walls. The term we use in the visual arts for the useable form of these pigments is paint.

Paint consists of three parts—pigments, which are the colour in powdered form, a vehicle which provides a stable liquid for the pigment, and a binder which holds the pigment and vehicle together. The combination of the vehicle and binder is often known as the medium. In acrylic paint, the medium is an acrylic polymer. In oil paint it is boiled linseed oil. In watercolour it is gum arabic. In egg tempera it is egg yolk and vinegar. Each medium modifies the paint's drying time, transparency, resistance to damage from the elements, as well as other properties. Watercolour is excellent for producing light washes of colour that are fairly transparent. Gouache and tempera are good at producing flat areas of colour without much blending. Oil paint is good for blending, and for glazing layers one on top of another. Acrylic paint is good for producing layered effects, or painting one colour directly over another. It produces relatively flat colour that is vibrant and intense. Each of these materials requires practice in order to learn to manipulate it well.

Brushes

Brushes can be composed of a number of different materials, from natural animal hair to synthetic fibres. The type of hair, and its length, help to determine what kind of marks it makes. Animal hair brushes with long bristles are excellent for flowing, spontaneous marks. A good example is a Japanese brush. Used in Japan for painting with ink on rice paper, it makes wonderful expressive marks with just a flick of the wrist. Short haired brushes are good at pushing paint around—they make small, quick marks and are often good for aggressive techniques. Particular types of paint brushes are meant to be used with particular paints. This is not to say that you cannot experiment, and find new combinations that work for you.

Pencil

Pencils come in different thicknesses, as well as different levels of hardness or softness. The harder pencils are those with an “H” on them, such as 2H, 4H, or 6H. The higher the number, the harder the graphite in the pencil. Likewise, softness in a pencil is designated by the letter B, such as 2B, 4B, or 6B. The higher the number, the softer the pencil. Most pencils are round, and the graphite is set within wood. However, there are pencils without any wood around them, making a broader mark. There are carpenters' pencils, that have a rectangular block of graphite. There are graphite sticks, that come in the same levels of softness as a pencil, but do not have any wood surrounding them. All of these variants on a pencil make different types of marks. All

of them can be used to make lines, tonal areas, rubbings, or to create visual textures, but each one does it differently.

Charcoal, Conté, and Pastel

Each of these stick based media has a different feel, and makes different kinds of marks. Charcoal has a very dry feel, and is excellent for smudging. Chalk Pastel is similar to charcoal, but comes in a variety of colours, and is wonderful for blending. Conté is like chalk pastel, but not as dry. It comes in a variety of colours, and is slightly greasier than charcoal. It does not blend as easily as chalk pastel, but is excellent for creating expressive lines. Oil pastel is the greasiest of the stick media. It can be used in a variety of ways, but is good for situations where a vibrant use of colour is needed.

Printmaking Media

As well as the traditional two dimensional media, another type of tool was developed at around the time of the Renaissance. Printmaking is based on the concept that a surface is inked, pressure is applied, and the inked surface is transferred to another. The surface to be inked can be made from a variety of materials, including wood (woodblock), metal (etching and engraving), stone (lithography), silk (serigraph or silk screen), or a variety of other materials. Usually each colour must be transferred to the paper separately, and usually a press of some kind is needed, to generate enough pressure to transfer the image from the plate to the surface. The printmaking media are quite diverse. The type of image needed often determines the specific printmaking process to be used. Some, such as lithography, silk screen, and woodblock, require you to put only one colour on per plate. An image with four colours would require four different plates, one for each colour. Some processes—such as etching—can place more than one colour on the press at the same time. Printmaking media generate rich images than can be easily produced in multiples.

Camera

The camera captures an image on film. The end result appears completely different from a painting or a drawing, or a print. It is perceived as a moment in time. A photograph captures a moment, while a painting is painstakingly compiled over time. Each has a different sensation of time. Usually there are no blurred edges, no undefined boundaries. Everything is neatly composed within the rectangle of the picture frame, and the objects within it are crisp and clear. The human experience of the world is quite different. Our eyes must move frequently to compile an image, and some of the image that is seen is always out of focus. The camera can be used in many situations, from objects moving with speed to detail work. It is a versatile tool that excels as a medium of documentation.

Different types of film will help to create different images. Regular daylight film is used for outdoor photographs. Tungsten film is used for documentation of artworks, or

fashion photography under special lights. Some types of images seem more effective in colour, while others need to be produced in black-and-white. Infrared film creates very unusual images, in which colours are not where we expect to see them.

The light sensitivity of film is an important part of the creative process. Films with a high number on them are more light sensitive than films with a low number on them. Along with a greater sensitivity to light usually comes a higher degree of graininess on the film. Films with a low number on them (such as ISO 25) can only be used with a strong light source, but can be enlarged many times without seeing any grain. High speed films (such as ISO 1600) are very sensitive to light, but are quite grainy.

Photographers looking to create a special visual effect may use filters, which attach to the lens of the camera to enhance or distort the image. Special lenses can be used to create interesting visual effects. A fish-eye lens will create an image with a high degree of distortion at the edges, and will capture a large viewing area on the film. A telephoto lens will bring distant objects much closer, but will also tend to flatten the perceived spatial distance between objects in the picture. Once in the darkroom, the photographer can further manipulate the photograph by use of special tools and techniques. The end result may bear little in common with the original image taken by the camera.

Film and Video

Images captured on film or video have a quality unlike a painting or a photograph. At their most basic level, they move. Motion suggests a level of reality that is quite different from still images like paintings or photographs. Films are made in different sizes, to be used in different situations. Small films produce a small image, which cannot be enlarged too far without distortion. At the other end is the kind of film used in an I-MAX camera, which is quite large. It allows for the image to be projected onto a very large screen.

Special lenses and films are also used in the film industry for special purposes. In addition, the film industry has created extraordinary special effects, such as highly detailed models, computer animation, and puppetry to create sophisticated illusions that appear to be real. Highly detailed models have been used in films like the *Star Wars* movies, or the science fiction movie *Blade Runner*. Puppetry was used in fantasy films like the *Labyrinth*. Computer animation was used to great effectiveness in films like *Terminator 2*, *The Mask*, *Titanic* and in fact, in most recently produced films requiring special effects.

Computers

Computers can be used to generate a wide variety of visual images, from still images to animation. Much depends on the type of software that is being used, and on the peripheral equipment that is available. One of the most important types of peripheral

tools is a scanner. This device, which can be either black and white or colour, is used to transfer drawn or photographed images (or any two dimensional form), and enter it into the computer, where it can then be manipulated by one of a number of software programs. The scanner reads information at a number of levels of sensitivity, which can be adjusted by the user. When a photograph, drawing, or other object is scanned, the image is translated into a dot pattern, much like a newspaper photograph. The term used to designate sensitivity is dots per inch. The higher the dots per inch, the higher the level of sensitivity of the scan. Hand held scanners usually can scan anywhere from 100-400 dots per inch. Flatbed scanners can usually scan anywhere from 400-2400 dots per inch. Drum scanners, which are used in the printing industry, can scan beyond 3500 dots per inch.

Once entered into a computer, the scanned image can be manipulated by a variety of image editing programs. Sophisticated ones allow you to do an almost endless number of things, from adjusting tonal values to complicated special effects. Because of the versatility of the available software, it is impossible to list all of the things a computer might do to an image. It is important to remember however, that a computer image is always different from a photograph, painting, print, or drawing. It has a different look and visual “feel”. The decision to use a computer should be based on the suitability of computers for the kind of image you want to create.

The decision to use a particular tool should be based on its intrinsic properties. In order to know these properties, you must experiment, using a variety of media in different situations to discover how they can best be used.

How does technology affect image-making?

Technology affects image-making in many ways. One is by the actual process of creation, the natural give and take that occurs when someone is working with a particular medium. In that instance, the image maker responds to the natural qualities of the materials. The direction and nature of the image is modified by the interplay between the artist’s ideas and his or her materials. Another way is when an artist decides upon a particular medium at the beginning of the creative process. The particular characteristics of the medium will then help to shape the idea. The former affects the process of creation only, while the latter affects the idea as well.

The decision to use a particular medium should be based on using that medium’s particular properties to best advantage. In other words, you might have an idea for an image, and you might have some definite ideas already about what that image should look like. Those ideas should help you to select which medium would work best. On the other hand, if you have made the decision first to work on the computer, you should understand that the choosing of the computer will help to shape the final product you make. Visual images are a complex dialogue between the maker’s intention, or beginning idea, her or his materials, and their strengths and weaknesses, the culture or

time in which the maker lives, and the context in which the final product is exhibited. All of those things work together to shape the idea for the work.

It is important to understand that it is not only the artist who is influenced by her or his choice of materials. Society's perception of the final product is also influenced by prevailing opinions about types of images. In other words, how a work is received has a lot to do with what people are used to seeing. If you produce something that is outside of their familiar perceptual world, it will appear strange and uncomfortable to them.

A final way that technology can influence image making is by opening new avenues of creative experimentation. Sometimes a new tool is developed, and that tool transforms the types of images that artists make. The development of oil paint in the fifteenth century caused major changes in the nature of visual images. The invention of the camera in the nineteenth century caused a similar upheaval in the type of images prevalent in society. The computer is having as great an impact as either oil paint or the camera on contemporary art.

Discussion

Using images from a variety of sources as examples, discuss why the artist might have chosen to use that particular medium. Is there some intrinsic property of that medium that might explain the artist's choice? How would the image look different if it were produced in another medium?

Projects

1. Using the same image, experiment with a variety of media and techniques. How does changing media change the image you are using?
2. Take a drawing or a photograph, and scan it into a computer. Manipulate the image using a paint program. How does the switch from one medium to another create new possibilities?
3. Explore the possibilities of a variety of tools to make lines. Which ones work the best for you?
4. Explore the possibilities of a variety of tools. Which ones are easy to use? Which ones offer you the most creative freedom?
5. Use a variety of brushes with paint. Observe how different brushes create different effects.

