

VISION FOR LEARNING: HISTORY, THEORY, AND AFFIRMATION

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Try an experiment. Pick up any newspaper, turn to any television channel, or listen to any radio station. In the news reports of any of these media, check off every reference to *vision, visual, seeing, display, appeared*, and other terms similar in meaning. This activity undertaken as an “experiment” will allow you to recognize the ubiquity of references in the media to the dependence of understanding and communicating on our metaphorical use of concepts surrounding vision.

Western society is and has been cut through with the idea that *visual learning*, including observation of performances, provides the most fundamental and efficient channel for information transfer. These essential facts about vision have held through human history. The capacity for vision came well before the biological development of language, and as the capacity for communication through oral symbol systems evolved, the visual functioned as primary reinforcement of meaning transfer in verbal and performative communication and of memory retention.¹

This chapter looks at a few examples of the power of the visual to stimulate spontaneous verbal communication and to support

conveyance across time and space of shared memories. In the first section of this chapter (as in the opening portion of the *Handbook*), we take an historical view on learning, exchanging, and belonging through all the arts that constitute “multimodal literacies.” We look at two historical cases to illustrate how visual learning undergirds many of the functions, goals, and channels of literacies. These cases, drawn from the Middle Ages, may seem far-fetched in conception and vastly different from contemporary digital technologies. Yet with these, we lay the groundwork that will enable us to see just how persistent are key social continuities in patterns of interdependence that tie the visual with the communicative and performative.

In the second section, we support this interdependence through evidence from current work in evolutionary biology and the neurosciences. Theories and findings from these fields are extending what we know about the neural operations that support our capacities for envisioning, embodying, or articulating knowledge, wisdom, skills, and information.

The third and final section of this chapter threads several key themes from the prior two sections through selected aspects of current advances in videogames. We take these up because of their rapid rise to near universality in the postindustrial world and their foreshadowing of technological and social trends in the arts that challenge long-standing views about individual learning, the role of play, and the primacy of *texts* in literacy. Examined here in close detail is the affirmative value of communal membership carried out by engaging through multiparty video games in collaborative visual and performative design.

The chapter closes with the challenge of keeping a Janus-like consciousness—looking back to history and forward to what we still

¹ Any discussion of visual learning should take into account how that which has been learned about the key role of vision relates to the blind, particularly those who are blind from birth. However, so few studies exist of the development of perceptual performance and verbalizable metaknowledge of such individuals that generalizations are impossible. For those individuals who become severely impaired beyond childhood, a growing body of knowledge is influencing the world of art and the representations of art forms in museums. See, for example, the discussion of the exhibition *Blind at the Museum*, presented at the Berkeley Museum in 2005 and headlined by the blind photographer, Alice Wingwall.

have to learn about how the brain works from and with visual and embodied learning (Kosslyn & Osherson, 1995; LeDoux, 2002; Levin, 2004). Moreover, aspects of today's modes of visual learning parallel in several ways features and purposes prominent in the Middle Ages. This basic acknowledgment carries unending ramifications for our perspectives on *literacy* and its rapidly evolving dependence on intertwined layering of graphic design, role-playing, symbol systems, and music.

LOOKING BACK

Choices abound of where to look for the origins of the fundamental roles of the visual conveyance of meaning (whether with or without accompanying print or script representations). We can start with cartography, account ledgers, or judicial and constitutional documents. Or we can begin with the earliest recorded accounts of dramatic productions—those performed by traveling minstrels and mime artists, or within the liturgical cycle plays of the Church, or the spectacular pageant wagons that moved from town to town to celebrate particular historical events (Beadle, 1994). From even the shadowy beginnings we have of the earliest theater, we know that the iconography of architecture, dress, and adornments of civic life found its way into the spectacle of these plays as well as into the sculpted, painted, and stained-glass images of pictorial arts in churches and governmental buildings. It is in the merger of spectacle, narrative, and religious and economic history that we begin to look at the visual basis of literacy.

Because of its close associations with the beginnings of the book in the Western world, we start our historical sweep with a brief look at *illumination*. On this topic, we have not only ample documentation of process but also physical products that provide insight into the multiple ways in which humans have long created and valued pictorial support for music, oral and written language, and the performing arts. Illumination has its primary historical association with manuscripts. Yet, long before the manuscripts and books of the Middle Ages came scrolls, produced in support of political and legal matters, as well as calendrical records, or commercial transactions and religious participation. By providing possibilities for longer preservation and for wider distribution, illuminated manuscripts and books enabled those who could afford to sponsor or own them to ensure for their families or civic units that memories of events, places, and people continued beyond the span of a single generation.²

Manuscript books began in the third century and continued primarily as a monastic and court industry through the 12th century. From the 13th century forward, the commercial book trade took over their production. It was during medieval times, however, that *illumination* came to be a term that referred to any ornament that was perceived as making a text *legible*, that is, read or deciphered easily. Borders, fancy pen work, or pictures to be read in co-ordination with the text or to elaborate initial letters would be considered legibility enhancements. All of these first drew the reader's eye into the text and then deepened the meanings of the written words.

² Treatises abound of nearly every aspect of the details, processes, and ideologies behind and within illuminated manuscripts. Accessible references drawn upon in this discussion include Alexander (1994); Backhouse (1997); Camille (1992); Gumbert (1990); Hindman (1991); Hindman, Camille, Rose, and Watson (2001); and Watson (2003). Specialized works treat the inclusion of miniatures in choral books (e.g., Carli, n.d.).

For example, in choral texts provided for some cathedrals in Europe, these illuminations took the form of *miniatures* and rendered within a single quintessential scene an entire narrative. Stories such as those that surround the Nativity, the Last Supper, Crucifixion, and the Resurrection, or even such specific scenes as the visit of Mary Magdalene and the other Mary (Mother of James) to the sepulcher would be called forth within each miniature created within the text of the music. These stories would be known to listeners and readers as scriptural narratives told and read from pulpits, but also rendered visually in lead glass windows, paintings, friezes, and frescoes on the walls of private chapels and churches and cathedrals. These separate illuminations or *miniatures* are termed such both for their small size and for their power to reflect in the tiniest of scale the magnificence of scriptural messages and the intricacy of natural wonders (such as that of a single flower at the height of its bloom or a magnificent peacock in full display).

Two aspects of literacy carried within illuminations, including miniatures, merit special attention for their continuity. Yet both aspects rarely receive attention in contemporary studies of how reading works. First is the fact that these visual (largely pictorial) aids to legibility and learning affirmed the collective social and shared-knowledge membership of those using the illuminated manuscripts or books. Second is the expansive force that such small intricate visual renderings carried.

To demonstrate this first aspect, we consider in some detail illuminated choir books in their support role for the religious services' liturgy (Carli, n.d.). As noted above, the miniatures pictured scenes that, in most cases, immediately conveyed a particular Biblical story. But the miniatures related also to the music and liturgy used for particular celebrations and rituals within the Church calendar. For example, the Sundays leading up to and following Epiphany (when the wise men are said to have been told of the birth of Jesus) have special music. Embedded within the musical score would be miniatures of key scenes within this particular story or renderings in exquisite detail of some item (e.g., one of the gifts brought by the wise men) that symbolizes the event.

For the second aspect, we also use the miniatures included within choir books of Gregorian music. Deep within the details of these miniatures were messages discernible to choir members and carrying musical, as well as symbolic, significance. Gregorian music is based on certain modalities (e.g., tetrachord, hexachord, and octachord), and at this important level, the miniatures could carry within them symbols to indicate to the singers (in advance of the chords within the musical text itself) the modality of, for example, the response to come following certain prayers.

The point here is that the deepening or expansive power of the miniatures was carried not only in the *general association* of a certain story with a particular seasonal ritual celebration but also within *details of adornment* around the single scene of the miniature. For example, a miniature including a certain number of angels with a particular combination of musical instruments and choristers would convey the message of *octachord*, perceived to be a portrayal of "perfection" in form and harmony. This modality of Gregorian music would be further reinforced in its "perfection" by the fact that the story behind the scene conveyed in one of the accompanying miniatures would be interpreted as embodying perfection itself—for example, the Virgin Mary being taken up into Heaven (Carli, n.d., pp. 43–44).

Critical for understanding the multiplying effects of illuminations is a sense of not only the associations they carried to music and writ-

ten and spoken texts, but also the many forms these illuminations could assume. Some were decorative initials that carried within them one or two scenes that conveyed entire stories. These initial letters (that usually opened portions of extended scripted or printed texts) held within their curves and crevices details that conveyed Biblical scenes from the Old and New Testaments: Abraham's readying his son Isaac as sacrifice, the shaming of King David by the prophet Nathan, or the clearing of the tables of money changers in the tabernacle.

But forms of scripts changed during the Middle Ages. Therefore, the scribes who created the illuminations could choose the type of script that might afford more or less room for internal additions—distant craggy mountains, angels or cherubs, cityscapes, and so forth. These often bore no relation to any accompanying textual materials. Scribes also had borders and frames, as well as ornamental flourishes within the pages, as “extra” hooks and corners. Within borders, scribes sometimes created frames of narrative that in their sequencing told a particular story not necessarily associated with Biblical texts. (Both frames and borders of illuminated texts foreshadowed today's storyboards and comic strips in their linear portrayals of narratives.)

Borders and frames, more often than not, particularly in medieval manuscript books prepared for noble households or for doctors, lawyers, bureaucrats, and merchants, also pictured flowers, fruits, insects, and birds, along with traditional grotesques. String foliage, appearing as sprays of flowers or climbing vines, enclosed these creatures as secondary ornaments. It is significant that until the eighteenth century, the term *vignette* meant “border,” and, in fact, portraiture, histories, and vignettes were combined in the designs of medieval books (Watson, 2003, p. 35). Also within these borders, as well as within some large ornamented initials, were quintessential scenes of everyday life: the hard-working peasant woman home from collecting firewood and scolding her lazy husband.

Though illuminated manuscripts are generally thought of as strictly religious, their art often portrayed grotesque animals and figures that bear no connection to religious content. By introducing the play of humor or satire, illuminations multiplied the interpretive meanings a reader or parishioner could carry in his or her attitude in relation to a Biblical scripture. Playful monkeys, grotesque figures covering their ears, or hybrid figures blending fantastical creatures with half bodies of humans could convey attitudes ranging from cynical to incredulous. Reversals of the realities of everyday life, such as hares chasing dogs, also bore evidence that scribes chose to include in their art their own thinking beyond the rigid, given, or strictly “textual.” These scribes introduced into their work what today might be considered obscene or bawdry illustrations, showing the persistent inclination of humans to subvert conventional hierarchies.

The role of play for extended meanings, through both the fantastic and the everyday, but often in association with the noble and the godly, continues in another historical selection to illustrate the value of reading in, with, and through the visual, dramatic, and performative. In the city of Ferrara is the residence Palazzo Schifanoia, its earliest portions dating from 1385 and built by a prince of the Este family (whose members were the regional counterparts of the Medici family of Florence). Gentlemen of all of the four families of greatest wealth in Italy at this time had multiple residences, and at least one of these was often designated a “pleasure house” or “delizia.” In Ferrara, the Palazzo Schifanoia (drawn from *schivar la noia* or “away with boredom”) was a place of entertainment and recreation

designed to enable those who handled the business of the day (from governing to hunting to cultural event organizing) to rest, play, and be entertained.³

On the second floor of the Este *delizia*, two well-known local artists created a 96 metre fresco within the *salone dei mesi* or “room of the months.” Portrayed within the fresco are three levels depicting allegories of the months of the year through scenes of life of the Este family in everyday and business or courtly life (bottom level), the work of the particular season by peasants and city dwellers alike (middle level), and mythological figures—all of whom are pictured returning in triumph from battle (upper-most level). The 12 months are represented by their astrological association for the most part; gods of Roman mythology also appear in each of the months portrayed.

Remarkable in the reading of these three levels is their dependence on small details for conveyance of symbolic meanings, story continuities, sexual innuendoes, and peculiarities specific to certain families, topographical features of the region, or particular occupations. For example, in the section painted for the month of April, the upper layer shows Venus in a chariot drawn by swans. Kneeling before her and in chains is the figure of Mars. Among the gods, both triumph and defeat are reflected.

Playing about the chariot of Venus are numerous rabbits, and in the background behind her chariot, three graces appear along with numerous groups of young people in amorous attitudes. Nature is clearly bursting forth. More than the abundance of the spring season comes through in this one level; in the subsequent levels, the rabbits and swans reappear, along with a court jester, nobles returning from a hunt, and ladies standing by to watch it all.

Cutting across this triple layering of meanings to be held within each month are certain icons, utterly predictable as well as deviously hidden, but always serving the role of linguistic connectors or particles that indicate “as in” or “in comparison with” or “in contrast to.” Two key points stand out in any close analysis of this rendering of the interdependence of visual, performative, and verbal literacies:

- Some of those who read the frescoes in this house built to relieve boredom and to offer rest would not have been practiced readers of linear verbal texts, either with or without illuminations. Instead, their “reading” of these complex visual images would have to have come about through their having listened to and no doubt been told repeatedly the tales that went along with the history of each of the gods depicted within each of the 12 months, as well as meanings associated with particular astrological alignments.
- Moreover, many visitors to the room of the months of the Palazzo Schifanoia would have taken part in the work of the various seasons. They would have visited the Castle of the Este family, where they could view similar scenes of everyday life

³ Beyond local residents and specialists in the arts, the frescoes of the buildings created by the Este family in Ferrara have achieved little acclaim, and reproductions are difficult to obtain. Information used here comes from direct observation and consultation in 2006 with local historians and historical sources. The primary buildings with art of note are the Castello Estense (dating from 1385), the cathedral of Ferrara (dating from 1135) and its museum, and the Palazzo Schifanoia (dating from 1385; see the tourist publication *Ferrara: The Estense city*, DiFrancesco & Borella, n.d.).

in each month in stone friezes on the building's walls. They would also have taken part in dramatic festivals that served as rites of seasonal intensification within the city. These involved the pageantry of flags, horses, armor, elaborate costuming for horses and riders, elevated stages within the city's market centers, and banners throughout the city. Within the details of the accoutrements of the pageantry would have been the icons, characters, colors, and details portrayed also within the frescoes and friezes.

Here in architecture, pictorial art, iconography, and drama, as in the illuminated manuscripts, meaning came alive, carried by details and patterns of repetition. Viewers could link all of these in one way or another to their own daily civic life as well as to imagined worlds.⁴ In every horse, every nobleman, and every ripple of a flag, the shifts of markings, alignment of buildings, and alternations of colors conveyed significant differences of meaning.

The reading of frescoes, friezes, pageantry, and the hearing of Biblical, Classical, and civic texts, along with participation in the vibrant life of the close connections between city and countryside in the seasons mattered. All of these in combination affirmed civic membership for individuals living in a specific place and time. To understand life fully was to see oneself in visual arts in the company of the great, both distant and close to one's own existence. Rites of intensification and rites of passage, such as those of seasonal festivals or holy days, depended on the interplay of dramatic, musical, and visual arts along with the verbal. The combination brought the familiar of the labor, laughs, and contradictions of the everyday close up, while also reminding listeners and viewers—from lords to peasants, from clerics to parishioners—of what they knew in common. Above all were the gods and the government, and both could experience supreme triumphs and great failures.

SEEING, THINKING, AND SAYING

Perhaps the fundamental tenet that ties vision and learning together restates a view that philosophers have long held: perception amounts to intelligent decision making. Fundamentally, "perceptions are prediction, never entirely certain, *hypotheses* of what may be out there" (Gregory, 1997, p. 5). All visual art forms push interpreters toward some sense of connection and completion, because the brain is merely *representing* some selected features of the world. The eye's images come to us as useless until and unless we can go beyond the

sensed evidence to look into the future with some awareness of prediction or possibility. We have to remember that we all "behave to the present by anticipation of what is likely to happen, rather than from immediate stimuli" (Gregory, 1997, p. 11). Critical to understanding what is to come is then not what is current information, but experiential and stored information fed by sensory stimuli within the present moment and used to create hypotheses toward the future. In essence, what we see in any moment both feeds into and enables past memory, and it activates and enables our sense of ourselves as actors moving with agency into the future.

We speak easily of "seeing ourselves" within a film, painting, or play. When we do so, we generally refer to our perception that the current art form represents our own past actions or feelings in some way, but we have relatively little understanding of how this kind of visual metacognition works or the ways in which we realize that representations do not copy or reproduce the world, but instead become material we use to represent to ourselves our own perceptions. These we recreate and manipulate visually and linguistically, for our perceptions are our obligatory filter on the world. These filters work in large part with regard for our intentions (Malle, Moses, & Baldwin, 2001) that guide us in focusing our attention. There is "no conscious perception without attention" (Mack & Rock, 1998).

Evolutionary biologists and neuroscientists help us understand why connecting, completing, and especially moving the past into the future matter so much to us in our efforts to read and to interpret symbol systems and icons. Archaeologists and biologists working together with the same recovered evidence continue to confirm that, for example, in our earliest evidence of art, the portrayal of *roles* was critical (Donald, 1991; Houston, 2006). As human beings evolved, their altered social and physical environments forced an increasing range of social roles and hence of language use and capacities for taking on multiple perspectives as individuals performed to meet the growing number of societal needs (Deacon, 1997). *Performance* implies agency, which in turn holds possibilities of action envisioned as part of our perceptions of ourselves in the world around us.

The visual and performative arts bring viewers and participants into identification within scenes, for these scenes enact metaphorically what neuroscientists describe in the action of mirror neurons in the brain. Observed action that another individual takes stimulates the viewer to do—or to think of him or herself as doing—the same. In this way, the viewer of a painting, dance, or drama becomes an agent in interaction with the work of art (Turner, 2006). This markedness is driven by the awareness on the part of all individuals of their role in the future replication or replaying of the current moment for the instructional, mentoring, or modeling function that such actions will have on others.

Children learn to *see*, *do*, and *be* simultaneously in their play, for here they enact and embody roles they take on for themselves; they shed those roles that others assign them (e.g., that of *child*, *student*, or *pupil*). In the roles they assume in play, as well as in their own created and visual arts, children learn to project consequences and subsequent actions, issue strings of words, and extend themselves in their imaginations beyond the current visual field (Gallese, 2000; Mathews, 2003). Later learning challenges have to be met through honing the powers of attentiveness, memory storage, and capacity to connect, correlate, and conceptualize with appropriate relevance. The more practice and engagement with the forms of participation and viewing that call for projection into possibilities, the more learners store for connection with new information (Gopnik & Meltzoff

⁴ These aspects of the representation of human activity receive examination in the work of Meoni (2005). Here the analysis is of the fresco cycle in Siena's Palazzo Pubblico. The overall image of this fresco is that of the "Allegory of Good Government," and one portion portrays the "effects of good government," while another depicts the "effects of bad government." Notable is the fact that the "good" contains a continuum and a layering of life from the highly domestic to the intensely ceremonial, legal, and governmental and extends in reach from the inner city to the countryside. The interdependence of peasant and royal, men and women, young and old, commercial and religious, civic and recreational shows through in every details. The "bad government" portrayal, on the other hand, contains relatively little detail, and a sense of vibrancy is missing, as is the stretch of continuity and the delicacy of the interweaving of life from city to country.

1998; Heath, 2000). The more positive the rewards for appropriate connection, the more habit building and creative these behaviors become. Today developmentalists understand that engagement across a range of roles early in life, through middle childhood, and into adolescence critically supports later language development (Heath, 2006). Evidence from neuroscience is mounting that multiple and varied opportunities to role-play and to sustain visual focus and attentiveness enhance language development. In particular, these occasions give practice for taking creative jumps and seeking reconciliation among disjuncture and disparities. We may best capture this idea by thinking of the visual speaking brain.

Central here is work that continues to attempt to understand the “mind reading” or theory of mind capacity of humans (Baron-Cohen, 1995). When we try to understand both when and how this endowment of humans came into being (both in the evolutionary process and in the development of a young child), we have to give substantial attention to ways that humans detect the intentions of others through eye gaze, mutual tuning in, and other shared attention mechanisms (Carey, Perrett, & Oram, 1997). Many today still believe the old idea that an image of the visual world is impressed on the retina and then transmitted for reception and actual “seeing” to one part of the visual brain and then interpreted by another cortical area of the brain. But well before the end of the 20th century, neurobiologists were able to tell us that the brain, in a sense, dissects the visual scene, and vision, therefore, is organized through a highly efficient modular system that makes seeing and thinking almost inseparable. The brain has many visual areas, and each group of these areas looks at different attributes of a visual scene (e.g., form, line, color, motion). Within and across these areas, specialized areas distribute visual signals (Zeki, 1993, 1999). It stands to reason that these signals in association must then connect with the memory storage areas of the brain. If verbal communication is involved, as it must be when perceptions have to be verbally shared with others or even for inner voice, the visual areas then link with those portions of the brain responsible for language in highly specific ways.

We have known for some time that responses to pictures are predicated in large part on underlying mental structures that we draw upon not only to decipher or decode visual images, but also to encode these for access in short-term and working memory. What we are only now beginning to understand are the regularities of pattern, for example, in neuronal spiking for the simplest of visual feats (Rieke, Warland, de Ruyter van Steveninck, & Bialek, 1997). The limits of PET or fMRI images, as well as EEG and MEG, and of cerebral blood flow, are well known to us. Yet, we are very far from identifying neural substrates necessary to build image schemas of particular sorts or connections. We understand that given the complexities of vision, and certainly those of language reception and production, we will never be able to say just how it might be that sustained visual focus, role playing, and verbal explication or narration (in either inner speech or spoken language) work together in the dynamism of completion that is indispensable to human perception.

Yet neuroscientists increasingly work together to sort out two complementary strategies currently believed to help explain, among many things, just how we read ourselves as we read the arts—from the visual to the performative and the verbal. *Individual* neurons are certainly tuned to particular arrays and combinations of visual input activity. These neurons establish explicit representations of those constellations of features that selectively converge in hierarchically structured architectures. This kind of work of individual

neurons allows rapid processing as well as quick recall of frequently observed and experienced input. A second kind of work of the brain amounts to *temporary linkage or association* of neurons that work in functionally coherent constellations that represent as a whole a particular content. Here each participating neuron carries one of the elementary features of the composite perceptual object. This strategy allows for flexibility of the neurons, for a particular neuron can take part in different assemblies at different times. We have no limits to the dynamic and rapid association of neurons in ever-changing constellations, and thus we are able to cope with particularly unpredictable and highly complex information.

The role of the visual system within this processing is intimately linked with the “acting” capabilities of humans. When we see an object or scene and consciously image that visual information through enactment, we thereby activate other parts of the human system. This conscious imaging is termed *perceptual* by some scientists and is believed to be the essence of all conscious awareness (Metzinger, 2000).

The best current interpretation of the visual scene in humans is to produce the best current interpretation of the visual scene in the light of past experience, either of ourselves or of our ancestors . . . and to make this interpretation directly available . . . to the parts of the brain that plan possible voluntary motor outputs of one sort or another, including speech. (Crick & Koch, 2000, p. 103)

Though we may never know why or how vision supports the verbal and the performative or enactive, some key points are becoming clear with each year of research in the neurosciences. Seeing, imaging, and perceiving, or much mental visual activity that we consider essential to “thinking,” “understanding,” or “enabling” relies on attending and acting, seeing and doing. In other words, we have to play along in order to know.

THE SOCIAL GAMES OF LEARNING

For literacy researchers reading this chapter, the usual inclination with regard to the visual, communicative, and performative arts is to think of contemporary events—not to return to the Middle Ages or to contemplate the internal workings of the brain. Indeed, the majority of chapters in the *Handbook* speak almost exclusively of here and now practical combinations of visual, communicative, and performative technologies, arts, and activities that constitute multimodal literacies. In the closing section of this chapter, we do the same by considering a particular type of social game—one that many regard as *the* wave of the future. But we look at this *new* wave with an unexpected twist, for we argue that it is in fact a replay of its counterparts that go back at least to the Middle Ages.

Video arcades entered the pastime of children and adolescents in the 1980s; players would stand together at a single machine or station and watch one another play, sometimes switching off, so that more than one player could benefit from the fee paid per game or for a specific period of time with one or more stations. Within the span of a few years, however, these table-size video games morphed into handheld individual games, in which an individual player competed against the preprogramming of the device itself or one’s own prior record.

By the end of the first decade of the 21st century, the appeal of video games quickly spread beyond children and adolescents to

adults, making the video game industry's size comparable to that of the music industry. Industries behind video games and those that generate films began to battle for dominance in terms of gross revenue and consumer commitment. The individual video game gradually lost popularity, ironically, through the broad potential evidenced in the internet for social communication, cross-connected, multiply layered, ongoing, and instantaneous readings. While the popular media viewed the youth market as driving innovation, the business needs of the global economy weighed in far more heavily (Beck & Mitchell, 2004). The shrinking of the world demanded that interactive technology speed up and improve ways to network ideas, people, and places through visual images and verbal exchange and with an ever-widening range of graphic supports (e.g., computer modeling, global positioning systems, and meteorological and economic forecasting).

As these technologies developed, each accelerated the possibilities for and from visual learning with social enactment. As these accelerations and advancements in combination of possibilities happened, demand increased for multiple-layered information sourcing and creative input into games. We use here as a prime example of an innovation reflecting these features multiplayer video games, known as MMORPGs (massively multiplayer online role-playing games) or MMORLGs (massively multiplayer online real-life/rogue-like games). These have brought certain practices of playing both "back from" the Middle Ages and forward to an age of interconnectivity and creativity that still lies well outside either the imagination or our most expansive theories of learning.

Online video games have transformed the initially "isolationist" practice of video gaming into a hitherto unparalleled socializing experience. First available late in the first decade of the 21st century, online video games known as MMORPGs create entire virtual universes in which players from around the world can evolve and interact. These virtual spaces range from fantastic magical lands (as in the game *Everquest*, one of the first and most popular MMORPGs that has a sequel *Everquest 2*) to futuristic environments resembling complex science-fiction universes (such as *Planetside* and *Earth and Beyond*). Others provide worlds inspired by popular fiction narratives (such as the movie inspired *The Matrix Online* and *Star Wars Galaxies*) or more traditional, realistic settings replicating either mythology-based historical periods (*Dark Age of Camelot*) or the present (*The Sims Online*).

Possibilities for creating virtual realities multiply through the social interactivity of these MMORPGs. In essence, each player creates his or her own virtual characters, also called an *avatar*, and controls this avatar within a game's concocted universe. Over long periods of time (often years), an avatar can evolve in almost infinitely diverse ways (gaining new abilities, items, knowledge), ultimately reflecting the *unique* individual experience of the player it represents within the virtual world. In light of this kind of creative power, the avatars of online video gaming move into their creators' and players' imaginations, stimulating and simulating human desires and capabilities for having power over other creatures and indeed of environments (Yee, 2006).

In some respects, the MMORPG offers an original form of role-playing. Within conventional role-playing (such as that of mentally healthy children/adults *pretending* to be, or *playing at being* someone/something in a given context), the *play* ends as does the game or the theatrical event. Those who have been playing roles suspend their *act* and resume the *real* of their "true" selves. However, through

online role-playing in MMORPGs, the player's avatar continues to exist even when the player is *not* actively in the game. In other words, online video games engender everlasting virtual "space-times" that suggestively coexist with reality.

These simulated space-times exist exclusively online, each player accessing them through an internet connection. Notably, users must generally pay a fee (often monthly) to keep playing the game (about \$10 per month). The justification of such maintenance fees (that contrast with the one time only payment required to purchase traditional video games) lies in the fact that software developers must maintain and update the game's servers. Indeed, huge amounts of memory are required for these artificial spaces to operate continuously 24 hours a day, seven days a week. Thus, software companies have dedicated servers that host all the critical, preestablished data, as well as the constantly changing information that results from players' interaction with the virtual environment. Furthermore, these imaginary places, always accompanied by defining fictitious backgrounds (histories, characters, even laws of nature), tend to be moderated by the software developers. For example, a world-changing event might be introduced into the game, such as the discovery of a new galaxy in a science-fiction game; such an event then calls for modifications to what we may consider the context, scenery, or background of the game's world. Moreover, significant additions/modifications spawn "add-ons" (also known as "expansion packs"). These separate programs complement or expand the original virtual universes and perpetuate a game's lifespan. These add-ons require that the original game has been preinstalled, so they are truly added to the prior game, creating a kind of history internal to the interactive game world.

The MMORPGs massiveness spills into reality in discernible ways, affecting how individuals spend their money and time and manage the rhythm of their lives. Most video game experts agree that the reach of MMORPGs stretches far beyond the realm of *hyper-reality*. More and more individuals and groups therefore encourage and facilitate critical discourse about online video games and the problematic "spaces" they encompass in players' lives.

Yet others point out ways in which these games include "real" diversity. Because players generally do not know the "real" identity of other players, the usual socially constructed differentiations that distance adult from child, male from female, handicapped from able-bodied, or one ethnicity from another disappear. In the world of MMORPGs, 40-year-olds seamlessly interact with preteens and teenagers. In these hyperreal spaces, people evolve, communicate, and undertake tasks together without regard for age, sex, race, or religion. Often, player collaborations are simply joint attempts at progressing within the video game, taking on progressively more complex challenges in groups to increase the chances of success. They eventually share then the rewards of the accomplished expeditions with members of a given group; in essence, the majority of each player's actions in the game's universe are motivated by the desire to improve one's avatar continuously. In effect, every player begins his or her virtual life within an online video game as a "nobody," a character template among a limited number of templates, endowed with no more than a unique nickname. This name distinguishes the individual from all other game characters. But the player seeks to become a "somebody" through his or her avatar by accumulating upgrades, experience points, monetary units, and all kinds of possessions that make the avatar more powerful, respectable, recognizable, and most of all, more central to the virtual universe.

But here, aspects of the hierarchical nature of power from the “real” world reveal themselves, for certain players possess more powerful characters than others. Those who are more powerful keep pushing the artificial space-time forward, and they instigate changes that shape the structure of the virtual world. The dominant avatars are those of players who spend the most time playing the video game and are thus more skilled, knowledgeable, and organized than the relatively less experienced gamers. The more the player *actively* interacts in the virtual space (the more he or she plays the game), the more meaningful the rewards. The less active players constantly remain a step behind, powerless to influence the virtual universe in any significant way without following more experienced leaders. Indeed, the majority of players find their virtual avatars perpetually chasing after the power of higher ranked players. Concurrently, even those players with the most highly evolved avatars perseveringly modify them in the hope of upholding their status, persistently unstable and constantly threatened. Even in these interactive, virtual worlds, the ideals of power and identity, along with the desire for transcendental selfhood, seem to remain both in the everyday world and in what is seen as the highest layer. (Here we recall triumphant Venus with Mars at her feet in the fresco of the Palazzo Schifanoia.) Moving ahead depends on one’s observations of details of behavior and attitude among the avatars as well as ways to imagine ways to change the world to make these behaviors and attitudes work against power accumulation.

The realms proposed by MMORPGs seem capable of providing environments that stimulate the imaginations of both the young and the old. Metaphorically, this and other virtual realities represent an extended playground that allows relatively “free” play without the “real” constraints of socially constructed identities and powers. Building on ideas originally formulated by Jacques Derrida (1976), online video games delineate an original playground that *plays* on the “deconstruction-prone” characteristics of the already *unstable* signifiers of language. In this way, the virtual playground’s effects on cultural systems of meaning eerily echo the playful mockery of children—always a highly specialized form of imitation (Sutton-Smith, 1997). The virtual space generated by MMORPGs *playfully* removes existing power relations affiliated with real-world differentiations along the lines of age, gender, and race, as well as between work and play.

In an essential way, MMORPG universes present an additional feature that makes participation within them deeply felt as reading. When any player begins an interactive experience within the virtual space-time, the MMORPG accords him or her a *tabula rasa* on which to write new rules of operation, personal character, dimensions of competence, and plot lines. Here one is reading and writing simultaneously, and being a passive player is not possible, for at all times, one has to identify with one or more roles taken unto and into the self. MMORPGs create and sustain continuously stages upon which the scripts, characters, direction of action, and plays of emotion, power, and identity move with limitless possibilities. Each player’s interaction with the virtual universe and its avatars carries risk at every point, making the rush of excitement highly personalized and definable by specific unique moves within the game. As a result, the type of role-playing “performed” by subjects in an MMORPG tends to have relatively high stakes in comparison to other contemporary passive or risk predictable games. The player knows he or she is subject only to the current game world’s core elements (such as the impact of interstellar travel in a game such as *Star Wars Galaxies*). Yet in con-

trast to other modern practices involving role-playing, MMORPGs offer almost unlimited freedom for redefining the core elements that dominate or delineate the context of the virtual world. But with any such redefinition, each player’s interaction with the fantastic world must become even more detail driven and detail sensitive than ever before, because the complexities and possibilities within the world will only multiply and diverge from prior “rules” or “givens.”

It is here that MMORPGs come in for critique, as do their engineers. Some observers suggest that those who have created MMORPGs lack concern for the social and cultural implications of the kind of immersive experience that these games create. They remove players from “true” emotional consequences, just as some would argue all games do. Observers have long noted that players of all ages find appeal in games and activities that involve the relative absence of actual harmful physical consequences. Consequently, readers and game players gravitate to animation, cartoons, and science fiction. Emotions in any of these forms can be “played out” through creatures and scenarios that do not require the kind of “caring” about other human beings in “true-life” situations expected through the reading of novels, poetry, or dramas. But MMORPGs, in their very social nature and allowance for the creation of avatars that carry identities and abilities “given” by the players who “own” them, stand on the border between being close and distant. Players cannot escape either the response or the responsibility for what happens to their avatars, while at the same time, they need not feel nor will they themselves ever experience the happenings of the virtual world. There the “normal” rules of consequences, cause and effect, or sequencing do not apply. Yet, the intensification of basic role-playing operated by MMORPGs produce more than superficial involvement that can be turned on and off at will. As players engage in the complex, elaborate, and intimate “playing at being,” they and their avatars create and follow a performative script that both escapes and reflects the tensions of real social (though not physical or bodily) life.

A variant on the MMORPG concept deserves special mention. In 2004, the United Nations World Food Program introduced a computer video game on hunger around the world. Introduced at a children’s book fair in Bologna, Italy, Food Force (<http://www.food-force.com>) immediately drew so many players, the Web site kept crashing until the World Food Program revamped it to take the tens of thousands of hits. One of a small and relatively new category of peace games, Food Force puts its players in negotiating positions and allows them to do airdrops and to drive convoys through terrain filled with land mines. The goal here is to bring players together in a peace game within the realities of the far-reaching effects of violence, competition, and rebel confrontations (Rosenberg, 2005).

“NOTHING NEW UNDER THE SUN . . . ?”

It is probably safe to say that every culture has some variation on the Biblical text from Ecclesiastes: “What has been will be again, what has been done will be done again; there is nothing new under the sun. . . .” (Ecclesiastes 1:9–14 NIV). As a deeply human phenomenon, “playing along” by seeing, being, and doing puts one into the imperative of role relationships and social hierarchies, struggle and quiet peace, feast and famine. Success in every social game begins with focused attention to detailed manipulations of scenes, character reflections, and contextual interactions and evolves into actions and

communications. The point here is that, whether in the Middle Ages or the 21st century, developing a sense of self now and in terms of possibilities for the future demands an understanding of the interdependence of the highest and the lowest in social terms, the seemingly unattainable achievements—such as those of triumphant gods—as well as the most mundane routines of the everyday. Doing so comes to us most intimately in the plays of meaning made possible through multimodal literacies—whether those of illuminated manuscripts and frescoes in the Middle Ages or MMORPGs in the 21st century.

Why is it that of multimodal literacies we can rightfully say “nothing new under the sun . . . ?” As human beings, we are hard wired to learn through making and interpreting symbol systems visually, linguistically, and performatively. Making meaning for us comes through seeing, communicating, and acting together; our neuronal capacities insist on this interdependence. Our oldest forms of artifactual and artistic evidence make this persistent and essential gift of being human clear. Moreover, through this interdependence and our facility with representational means, we have for millennia built communities, reinforced and transmitted our shared memories, inspired creativity, and opened more and more creative possibilities of interpretation. Seeing is fundamental to our thinking and speaking as humans who depend on images and image making for our cognitive and social existence.

MMORPGs bear within them the mix of otherworld, the everyday, and the realities of hierarchies of power found in illuminated manuscripts and frescoes of the Middle Ages. All these forms similarly both build upon and challenge our notions of experience and the exchange possible through images in interaction with talking, writing, and acting. One of the ultimate ironies of imaging devices akin to videogames is that only through these have we been able to see the ways in which the neurons of the brain spike, its dendrites connect, and its blood flows. These devices tell us not only how we think but also “how images think” (Burnett, 2004). This kind of imaging offers a vantage point from which we can probe more deeply and analyze more carefully just how it is that seeing opens communication and agency.

Such learning makes possible the continuous experimentation of creating, reading, and interpreting symbol systems that reach back into history long before us and will stretch well into the future. In this continuum, the forms of reading and writing that humans create, interpret, and act with and against matter most. But achievement with these depends essentially on images and the visual learning these provide “in the head” and as components and complements of language, theatre, and dance. Images do not simply give us representations of the world. They are the foundation of our understanding of ourselves as thinkers and as players—ever moving between realism and fantasy, across contexts and continuities (Kress, 2004).

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