New Basics for New Literacies

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Over the last few decades, digital technologies have driven deep and profound changes in our relationships with our institutions, communications, and cultures. This process is not only ongoing but also accelerating. For the children who will inevitably grow up in this environment of change, we have done little to update the institution of education. The field of design has a great deal to offer children at this time. The thinking processes and multimodal approaches can, in part, provide the foundation for the skills that children will need for the necessary innovations of the future. The following article makes further recommendations for creativity as the next essential literacy for our children.

The new conditions demand a new way of thinking.
The new thinking demands new forms of expression.
The new expression generates new conditions.

Bruce Mau, Designer

Our children’s adult lives will be developed in “the new world,” one where digital technologies and a global context are at the forefront. In the last decade, it has become clear that the digital revolution will reorder the way we generate and communicate ideas. It is fundamentally changing our relationship with business, science, industry, media, people, policy, cultures—everything.

And although it is often difficult to believe, the current conditions of financial crisis have pointed out that an even larger landscape of change is imminently upon us as the limitations of outdated cultural, political, and economic forms have taken center stage in our awareness. We can now see more than the dazzling results of technology’s progress and more than the massive trajectory of globalization. We are now seeing the broad outlines of the pressing need for radically different organizing principles, fresh ideas, and new insights for our institutions. And many are beginning to undergo this drastic rethinking process—change at a deep and profound level. Looking through a long lens, it can be said that these needs are “design problems.”

While technology, business, and the futurists have been considering how to get a handle on the engulfing waves of change, the institution of education, in general, continues to carry on “business as usual.” But what about the children . . . the ones who inevitably will be involved in the redesign and rethinking processes of the future?

In 2006, a *Time Magazine* cover story was titled “How To Build a Student For the 21st Century,” a topic that was identified as “. . . the big public conversation the nation is not having about education . . .” This article emphasized that future jobs will “put an enormous premium on creative and innovative skills . . .” (Wallis & Steptoe, 2006, p. 52). These concerns are now being echoed around the world in think tanks, universities, foundations, and global organizations such as the United Nations Educational, Scientific and Cultural Organization. While it is clear to many that this is a vitally needed skill set for our children, just as important as the traditional literacies of words and numbers, it is still not on the national radar screen.

Although it is hard to imagine, let alone prepare for, a future we cannot predict even 5 years away, it seems clear that our best bet (and our children’s) is to make creative thinking a top educational priority. It is the most important mental equipment we can give them now, and it is the underpinning for the vitally needed innovation in the future.

The child’s counterpart to innovation is creative thinking. Practicing it can hone the natural tendencies we see so often in children’s play into a firm foundation of thinking skills that will serve them (and us) in the future.

And it’s not a matter of chance or talent or luck, creative thinking is a matter of focus and practice. Like reading, it’s a skill that is learned by doing. Inborn imagination and natural creativity become fluent thinking tools when children learn to see patterns, use associative thinking and practice creating. Also, just like reading, adults help kids along by supplying the right challenge at the right time. (Marcus & Monday, 2009, p. 9)

But the creative thinking we need to teach and learn now utilizes more and different media than it has in the past. The use of digital media as a primary means of communication unveils some of very different needs for content

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connections that go far beyond the words and numbers that form the basic literacies of today’s education.

Here, we put forward two (now mostly missing) pieces that are central to children’s basic education today. They represent different kinds and qualities of thinking skills, and both represent fundamentals to build on with increasing sophistication attained as more media are added and practice increases familiarity—just like the alphabet eventually grows into reading and numbers eventually become arithmetic.

Engaging the Emerging Media: New Digital Lexicons Are Needed

The design world knows that images and sound are just as important (if not more so) than are words and numbers in their power to capture attention, communicate ideas, and change behavior. The possibilities of using, creating, and sharing ideas via digital media are now clearly imaginable by young people. They have adopted the media and the mindset, and they are collectively aware that it is “the future.” It is their media. It is a global phenomenon, and there is no going back.

At the same time, note that most children do not have refined, effective digital-media skills. Even those who have ready access to tools and who are technically fluent typically do not have the sophistication in their basic communication skills to effectively use these media. Kristina Woolsey (2007), former director of the Apple MultiMedia Lab and recently a principle investigator for The MacArthur Foundation’s “Digital Kids” project, put it this way: “...we found great talent and enthusiasm from youth in media awareness and technical capabilities; interaction with adults is critical in adding competences in areas like design, intentionality and judgment” (Figure 1). So far, we haven’t given them much help.

Along with a digital lexicon, we need to add a new symbol system to basic education: the Sensory Alphabet.

The Pattern Language of the External World: The Sensory Alphabet

We think in all the ways we experience the world. We think in pictures, in sound, in movement...we think spatially, abstractly, and texturally. We literally think with our whole bodies, but in our culture, we mostly honor and educate the linear, abstract, expository thinking we do with the left side of our brains. But if we want to engage creative thinking, we must educate our whole selves—all the ways of knowing.

This is familiar territory to most designers who are used to thinking across many media and who are facile at crossing boundaries between fields of study.

The Sensory Alphabet represents the foundation of this multiple-ways-of-knowing approach. It is the basis of our sensory connection with the world. We call this key element the Sensory Alphabet, and it has the same relationship in this approach as the traditional alphabet does to reading. It is not a process or method—however, it is the place to begin. This is it: line, color, texture, movement, sound, rhythm, space, light, shape. It is tempting, first off, to think of it as an art or design vocabulary, but it is more than this—it is just as fundamental to physics or basketball (see Appendix for more detail).

This elemental vocabulary is the pattern language of everything that is “out there.” Because it describes but does not define, it enlarges the capacity for seeing patterns. It lets us see both lemons and windows as shapes...both ballet and algebra as lines. It enlarges our capacity for perceiving patterns between disparate objects, fields, and cultures...and this ability is one of the hallmarks of creative, innovative thinking.

The Sensory Alphabet can be thought of as another very basic symbol system we want our children to acquire, just as basic as the traditional alphabet and numbers parents teach their children today. It will enlarge their early repertoire of ways to symbolize and communicate their ideas. It also will build the foundation for a more informed interaction with the digital media that uses this symbol system,

FIG. 1. Slide from Woolsey presentation (2007), used with permission.
conveying ideas with images, videos, icons, and sound. There are many kinds of thinking skills associated with this symbol system, just as there are as you become “literate” by learning parts of speech, diagramming sentences, practicing cursive writing, thinking in terms of poetry as well as book reports and essays, and so on.

The adoption of these new basics as a fundamental underpinning for “the new literacies” by the educational establishment can go a long way towards preparing children for the future. And there are valuable by-products, too. Because these basics involve a sensory-based symbol system compared to the linear and abstract symbol systems of words and numbers, they offer a much larger set of alternatives in which children can find themselves. And because digital media is multimodal, there also is more latitude for children to find naturally fluent expression for their individual cognitive styles and strengths. Just as important, when these new literacies become a part of the educational establishment, valued as highly as literacy and numeracy are now, many more children will be afforded the feeling/knowing of being “okay.” This positive sense of self will then translate into more confident, curious, and creative children across the board.

References

Appendix: The Sensory Alphabet
(Adapted from Marcus & Monday, 2009, pp. 33–41).

Color
Human vision is distinguished by the color-detecting ability of our eyes. For us, color is often the element of discernment—and the visual language of emotion.

Green with envy, seeing red, walking around under a black cloud—emotion transforms itself into colorful characters, colorful language, poetic passion. Paint on canvas creates sunny weather or an emotional storm; and color in music paints a picture solemn or spritely. Where is your color sense alive? In cooking or chemistry, stargazing or paint mixing, finding rainbows, delighting in a feather’s iridescence, or in an outlandishly fabulous fashion sense?

Sound
Sound has the inherent quality of acting directly on the emotions without going through the intellect.

Listen. The world is speaking to you in 1,000 different voices. When we listen, we put ourselves in the moment: present to an argument, a plea, a whine, a bird call, wind in the trees, or a symphony. Besides the obvious (musicians and music), actors, politicians, priests, and parents invoke action with tone, timber, tempo, and sound. Writers (and readers) listen as words unfurl on the page. Painters may paint a sound, and runners may use one to make the miles fly. Ecologists, anthropologists, bird watchers, linguists, and physicians all use sound to diagnose, distinguish, and define.
Light

Light delights as the most elusive and changeable element of form: giving contour, creating mood, illuminating all manners of truth.

The sea sparkles, pearls have luster, silk shimmers, we “see the light.” Stage designers, cinematographers, photographers, and architects are obvious masters of light and shadow. But think, too, about light as perceived by physicists, glass artists, poets, and urban planners. Without light, we are literally and figuratively “in the dark.” Fireflies, fireworks, shadow play, and starlight are some of our first light-filled fascinations—what are others?

Space

Space is omni-dimensional, geographic, and temporal, both geometrically present outside of us and metaphorically present inside the fences of our imaginations.

With space, what isn’t is as important as what is: the inside of a basket, the silences between the notes, the pause between the speakers, the room inside the walls. A canvas’ size or a room’s dimensions determine how we move within it. As humans, we cannot help but pay attention to space as space and space as time. How long? How wide? How fast? How slow? Where and when? Think about how these people use and analyze space: mechanical engineers, publishers, architects, dancers, cartographers, chess players, editors, sitcom writers.

Movement

Movement is about change and getting from here to there, from up to down, from then to now.

We talk about how ideas move us, how ambition drives us, how responsibility keeps us tied down, how our imaginations run away, and how our philosophies collide. A story line must move right along or it loses our attention; cycles of days and years and viewpoints become the stuff of history; cycles in our bodies, in weather, and in nature present whole worlds of study. Kinesthetic learners must move into knowledge, often quite literally, finding the meaning of a concept by physically moving into it. Movers include (but are not limited to) explorers, botanists, meteorologists, dancers, acrobats, athletes, construction workers, industrial designers.
**Rhythm**

*Rhythm is the heartbeat element, holding things together in big and little patterns.*

We each have a personal rhythm as distinct as our fingerprints, recognizable beneath the changing tides of emotional rhythms that rock and roll us through the day. Rhythm at first thought is audible and invisible—drum beats, finger taps, cadences and cacaphony—but imagine the world without stripes, dots, and dashes, without the visual patterns of steps, of lines of shoes, of the this-and-that way of the lines in a leaf. Without rhythm, who could be a pianist, a mathematician, a poet, an actor, a director, a salesman, a video editor, a debater, a basketball player, a waiter, a politician, an animal behaviorist, or a juggler?

**Line**

*Line, the elemental foundation for print and number, has determined much about 20th-century life and success in our culture.*

Isobars, arteries, fault lines, line drives, battle lines, lines of credit, time lines, lines of type, notes, numbers, and people—stretchy, slinky, fixed or floating, dotted or dashed, lines connect two or more points. And the points are, as mathematicians remind us, infinite. Writers pen story lines; programmers, lines of code. Biologists decipher lines of DNA; entrepreneurs develop product lines. Singers follow melodic lines; jazz musicians improvise upon them. Where do you enter the element of line? As storyteller or scribbler? With delight for a maze or an appreciation for ballet?

**Shape**

“Shapes shape other shapes.” As shape finders, we look for symmetries, for foreground and background, the doughnut and the hole, for the whole of the thing that is greater than its parts.

Putting puzzles together is playing around with shape, and so is the literary love of beginning, middle, and end. Pleasing shapes play their part in our neighborhoods, our furniture, our plates, platters, shoes, and cars. Shape makers include sculptors and typographers, mathematicians with their worlds of symmetries, microbiologists, industrial designers, and couture clothiers. We shape play with shells and rocks, clay and cookie dough, big bouncing balls, and smooth, sleek kitty cats.
Texture

At its most direct, tactile information is as close as it gets, up close and personal, right at our fingertips.

Smooth, woven, wrapped, slippery, shiny, course, rigid, and reedy. We see texture, too, and hear it in a voice or a song. Our days are rough or smooth, our moods even or edgy, our voices piercing or pointed. Surgeons, weavers, gardeners, art collectors, textile designers, and chefs must all pay close attention to texture. Do you remember exploring texture in the sandbox, through a microscope’s lens, coiling clay snakes, eating ice cream, or squishing toes in the mud?