Internet Time Group

Envisioning Learning

by Jay Cross, Internet Time Group

> "...the illiterate of the future will be ignorant of pen and camera alike."
> *Moholy-Nagy*, the Bauhaus

It's right before our eyes, but we're so habituated to it that we can't see it.

We've confused reading and writing with learning. Most lessons are linear and verbal. Most books do not contain a single illustration. On the web, one highly-regarded but seriously misguided guru maintains a large website on usability (of all things) that contains not one picture. eLearning lessons abound with garish, meaningless clip-art. Schools devote years to teaching students to read and hours on developing their visual intelligence.

In a world that is increasingly concerned with speed, we force learners to read words that they must repeat in their minds in order to decode them and process them associatively. You can grok a picture but not a block of text.

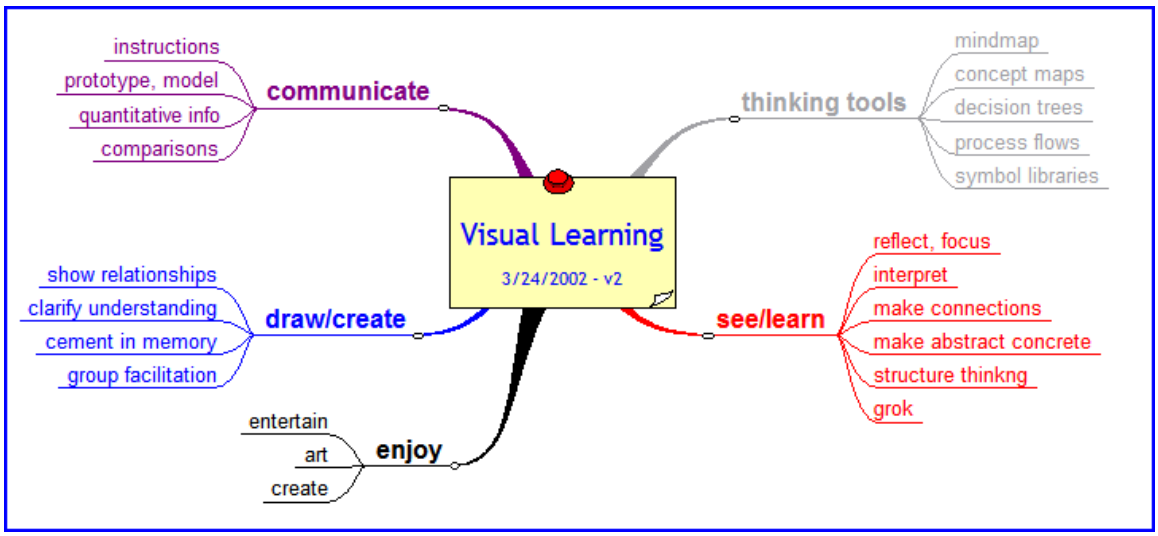
Rather than ruffle feathers haggling over how we arrived at this sorry state, let's dive right in and examine how vision can improve learning.

You know why they call it vision, don't you? Visionaries see.

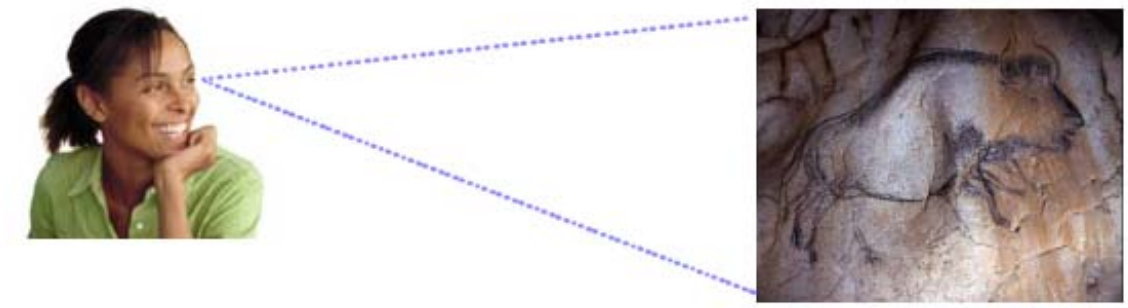
> If the invention of movable type created a mandate for universal verbal literacy, surely the invention of the camera and all its collateral and continually developing forms makes the achievement of universal visual literacy an educational necessity long overdue. Film, television, visual computers are modern extensions of the designing and making that has historically been a natural capability of all human beings and now seems to have been isolated from human experience.
> *Donis A. Dondis*

The varieties of visual experience

People learn visually by observing, perceiving, watching, comparing, connecting, drawing, showing, communicating, and structuring their thoughts. Here's a sketchy mind map of applications; I'm sure you could add more of your own.



Getting a visual message across



A woman looks at the wall of an ancient cave in France. What does she see?

1. It's a cave painting. It appears to be some sort of proto-bison.
2. It's a great example of primitive art. The oversized head emphasizes its danger to the hunter. The ripple of the cave wall accents the animal's powerful front shoulders. This could have come from Picasso's brush; in fact, it resembles his minotaur series.
3. It's food, apparently an important part of life in France even in prehistoric times. The painting "captures" the bull, pinning it to the wall forever. It may be a record of triumph in the hunt, a trophy that will last long after the carcass has been picked over.

These multiple interpretations converge into a single stream on information, capturing what we're physically seeing, abstractions that accompany it, and symbols that bring along meaning of their own.

Note that the woman interpreted the picture without resorting to words. Images often work when words fail. Graphics are a global language.

Visual literacy

Dogs are scent-mammals. Dolphins are sound-mammals. Humans are sight-mammals.

Seeing is so wrapped up in our being human that unless you've been struck blind, you can't imagine existing without it. The optic nerve is directly wired into the brain. Eye and brain are a unit and it's misleading to think of them as two different entities. Eyes are an exposed part of the brain; that's why they are so expressive.

The concept of vision is like the concept of time. It's clear until we stop to think about it. You'll never come up with a great definition of time. Trust me on this. But you can learn to use time wisely. As you grow wiser, you don't control time. Rather, you adapt the concept of time to suit your purposes.

Similarly, you can improve how you see things. No, I don't mean getting new contacts, although you may want to do that, too. Improving your visual intelligence is a valuable meta-learning skill. The better you learn to appreciate color, harmony, balance, symmetry, repetition, direction, and so forth, the more you'll learn from what you see and the more you'll enjoy life.

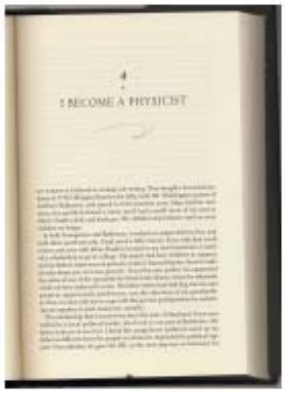
Need proof that vision is learned? Consider newborn babies. Babies learn to distinguish people by smell in a few days. They learn to discriminate by voice in a few weeks. It takes months for a baby to recognize people by sight.

If vision is the primary way you experience the world, doesn't it make sense to get good at it?

The tyranny of text

A German, Johannes Gutenberg, may have been the first to use movable type but it was an Italian, Aldus Manutius, who invented the modern, portable book. In 1498, he printed a five-volume set of the writings of Aristotle. Aldus invented *italics* in order to get more words on a page, for he wanted books small enough for someone to carry around. (Ever see a Gutenberg Bible? It's not something you'd carry around with you.l)

1501



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The book has not progressed much in the past five hundred years. Modern publishers use the same format, page numbering, margins, and oceans of unbroken text as old Aldus.

Don't get me wrong. I love books. Deeply. I have a library on the lower level of my house. I read forty to fifty books a year. Want to make me late? Let me browse a bookstore.

What really gripes me about books is that they could be so much better than they are. Give me pictures, photos, charts, diagrams, timelines, and marginalia. Reinforce the words with images. Don't make me go through the process of decoding text to get the picture.

Paragraphs are medieval. There's no emphasis. Why not print paragraphs the author considers important in a larger font? Wouldn't it be handy if the foundation paragraphs were printed in a different color?

What's the problem with lines of type? They are linear. This is not the way we think. Our brains operate by matching patterns and making connections. We think associatively. Thinking resembles freeform conversation, hopping from one subject to another, changing in emphasis, delivered with emotion, dynamically adapting to the now, forever an engaging assortment of choices and surprise. The written word conveys but one of the options. The author makes the choices. Imagery is to a wriggling puppy as text is to a stuffed dog.

Which is more fun – going to the library or going to Borders? No contest, right? When I go to the library, and I frequent five libraries, the information I'm after plays hide-and-seek with me. The lessons I'm looking for are trapped between the covers. All you can see are their spines. And you can't judge a book by looking at its cover. Or its non-judgmental description in the online card catalog. To make matters worse, obsolete books look just like current books; awful books look the same as great ones; new tomes hide among bound sets of yellowing government pamphlets. (Databases can handle pictures. Why is every library catalog text-only?)

Borders is a different story.

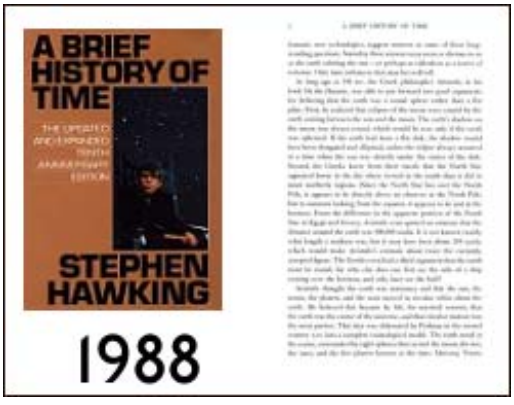
Borders only stocks books that it expects to sell. I realize that libraries have a mandate to hold on to some items as the depository of last resort. But bound copies of sixty-year old business magazines? Guides on how to program your Kaypro computer or to use Visicalc?

Back to Borders. The books are arranged so that it's easy for me to see them. I can pick up books and scan them easily. I can see the covers! This is more like it. I can relate to the books. Why don't libraries look more like Borders? They may have one display rack in the entire building, and that's probably for the few new books that haven't been picked over by previous patrons. I digress. Back to envisioning learning.

I want to be able to browse for my learning. Books and online lessons with more pictures and graphic elements would make it easier for me to dip in to grab what I need.

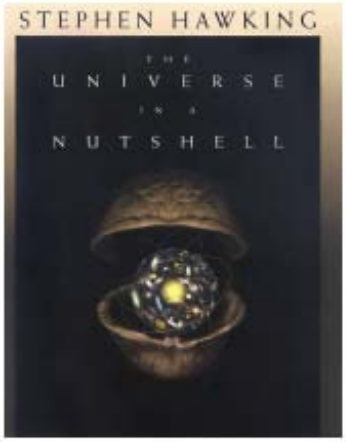
Natural evolution of the Book

Just as it was obvious to futurists in the sixties that automobiles would get more powerful headlights, larger windshields, and better mileage, it's apparent today that books are becoming increasingly visual.



In 1988, Stephen Hawking's *A Brief History of Time* zoomed onto bestseller lists. It contained no illustrations. The book gained a reputation as the most widely sold bestseller that no one had ever read.

In the forward to his new book, *The Universe in a Nutshell*, Hawking writes that, "I have come to realize that there is room for a different kind of book that might be easier to understand. *A Brief History of Time* was organized in a linear fashion, with most chapters following and logically depending on the preceding chapters. This appealed to some readers, but others got stuck in the early chapters and never reached the more exciting material later on. By contrast, the present book is more like a tree. Chapters 1 and 2 form a central trunk from which the other chapters branch off."



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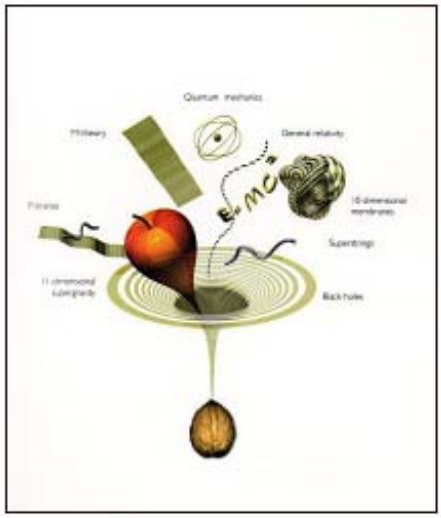
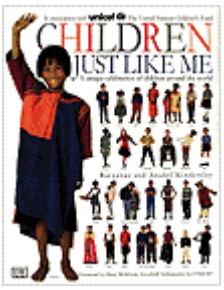


Hawking succeeds marvelously with the lavishly illustrated *The Universe in a Nutshell*. When a friend told me about the book, I rushed down to the Berkeley campus bookstore to pick up a copy. I bought it for the pictures. I've learned from the pictures. I'm waiting for other learning venues to catch up.

Dorling Kindersley (DK) produces beautiful books. You know the ones I mean. Profusely illustrated children's and travel books with intriguing typefaces and high-quality photographs shot in front of stark white backgrounds. Founder Peter Kindersley writes, "About 25 years ago, in 1974, I co-founded DK as a creator of high-quality practical information books for global markets. I believed that we could produce books that would fully explain principles, skills and techniques through text, diagrams and illustrations to a degree that had not previously been done and that we could achieve this by marketing the idea worldwide, thus enabling the final product to retail in every high street at a price no higher than the less well-illustrated competition."



These books are so lovely that I can't help but pick them up and learn from them. So sometimes I end up reading children's books because they are so much more fun to read than the serious adult stuff.

Sight, even though used by all of us so naturally, has not yet produced its civilization. Sight is swift, comprehensive, simultaneously analytic and synthetic. It requires so little energy to function, as it does, at the speed of light, that it permits our minds to receive and hold an infinite number of items of information in a fraction of a second.

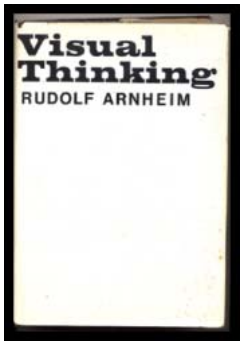
Caleb Gattegno, in *Towards a Visual Culture*

Where are the pictures?

Something drives me to express my ideas on paper or on the screen. A quarter-century ago my favorite perq was having an IBM Selectric typewriter to use at home. When the web came along, I was enthralled, for it let me communicate with pictures as well as words. What a liberating feeling. I could show my readers what I was writing about. Often a picture is worth more than a thousand words.

So why don't most books contain graphics? More to the point, since pictures can teach things beyond the grasp of mere words, why is learning so dominated by text? "Textbooks." Yuck. Page-turner eLearning. Reading assignments. Reading and writing and 'rithmetic but no pictures. Why are we blind to the opportunity to learn faster, better, cheaper with the help of pictures?

Last week I chanced upon a book on the shelves of the free bookswap at a neighborhood recycling center: *Visual Thinking*, by Rudolf Arnheim. He thinks our disdain for images comes from believing that perception is different from thinking. We're aware that our perceptions may be faulty. The world abounds with illusion. Distant objects look small but they are not; a straight stick entering water looks bent. So society is suspicious of perception – and has been since at least the time when Moses came down from the mountain carrying tablets of text and decreed that the sculpture ("graven images) be destroyed. Arnheim makes a strong case that perception and thinking are one. We think visually.



I dare say that the fellow who designed the cover of Arnheim's book did not bother to read it.

The Meta-Skill of Seeing

Visual literacy is a teachable skill, albeit one that is almost totally neglected by the school system. The measure of performance is the effectiveness of making meaning from images.

Whereas verbal literacy depends on learning grammar, rhetoric, vocabulary, and such, visual literacy encompasses understanding color, tone, line, texture, proportion, boldness, symmetry, repetition, accent, and media.

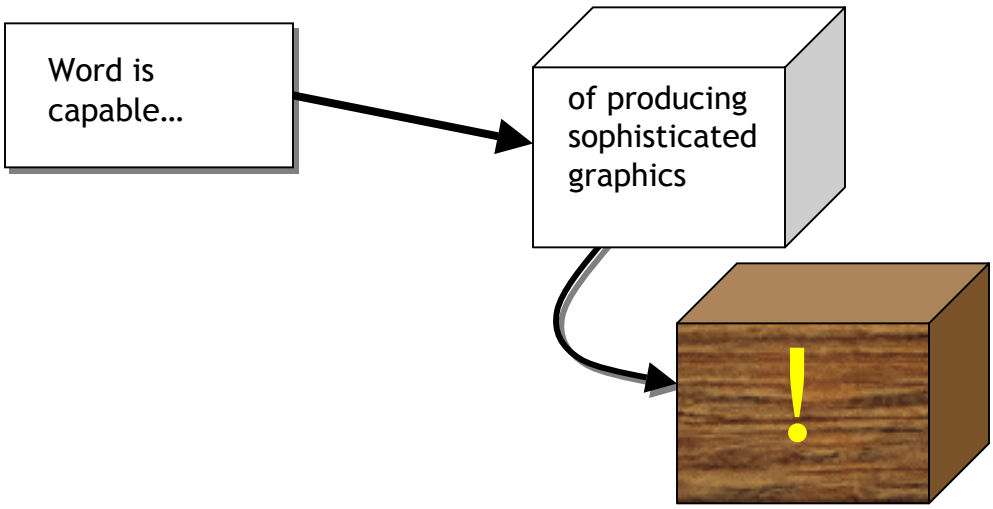
At the March 2002 meeting of the eLearning Forum, forty people were asked to think of themselves as chief learning officer of a large firm in Silicon Valley. How many would suggest that their firms adopt a new course entitled *Mavis Beacon Teaches Reading*? Assume a $39/head price tag and guaranteed 20% improvement in reading. No one. Not a single person would touch it. In spite of a 2000% return on investment.

The ROI of improving visual literacy is incalculable. I can imagine it accelerating the learning process many times over. Beyond that, I have no way to put a number on the enjoyment that comes from having a sharper eye. The investment side of this ROI is immense, too, for Mavis Beacon isn't going to teach you. Visual literacy requires immersion.

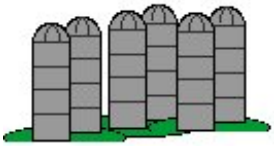
Creating Your Own Visions

Visualization is a two-way street. I can create pictures as well as look at them. In my own case, I often draw a mind map simply to brainstorm on my own and clarify my thinking. For example, here are my goals for the upcoming eLearning Forum session on Envisioning Learning.

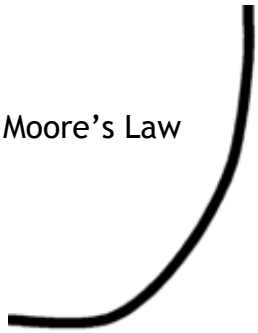
This mind map was created by MindJet's Mind Manager, a program that's as easy to learn as any I've ever seen. I also use Visio for flowcharts, although Microsoft's price gouging is driving me away from it. Inspiration is a great framework for plotting conceptual maps. For simple diagrams, I rely on the drawing functions of Word or PowerPoint.



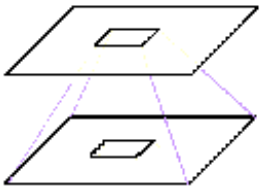
My sketches are, well, terrible. Instead of looking foolish…or unintelligible…when I want to express myself, I draw upon a library of symbols I've put together over the last year. For example:



Silos

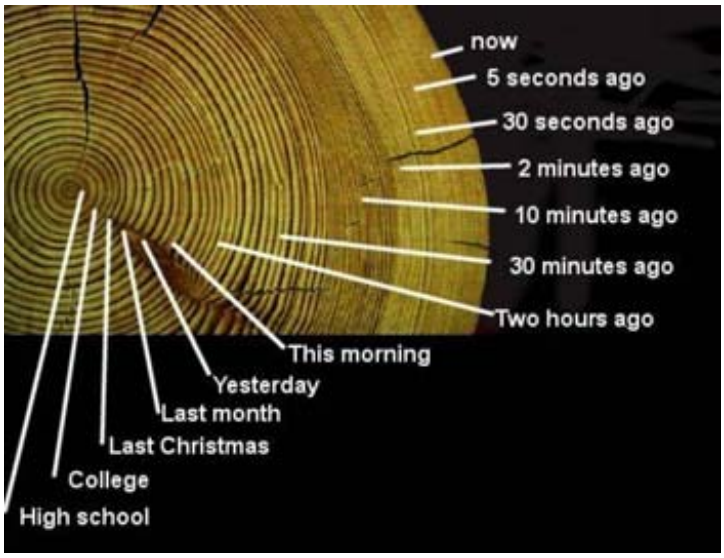


Go up a level



In time, each icon will be linked to a description of an underlying business practice. These often pop up in my blogs.

To convey meaning, I also like to assemble simple pictures to convey concepts, e.g. where we focus most of our attention. (I draw these with PaintShop Pro, a $99 clone of PhotoShop.)



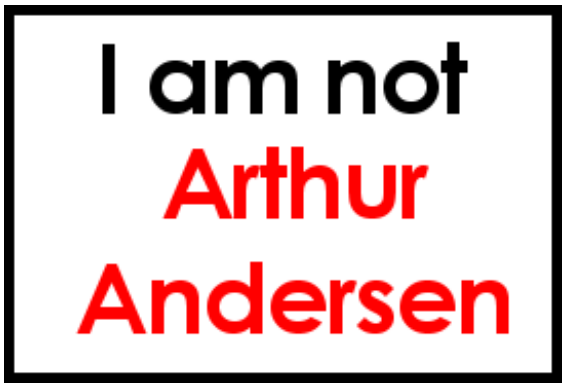
When digital cameras came out, I had to have one. Now I carry a pocket camera nearly all the time. I use my photos in presentations, e.g. here's some informal learning going on:

If you want to see more of what's going on about you, either carry a camera or pretend that you are, and be alert for good shots. Framing potential shots focuses my attention on things I would not have otherwise noticed. The flowers here are beautiful today.

Bringing People Together

In *Serious Play*, Michael Schrage describes how creating prototypes is the secret to innovation. More prototypes, more ideas considered, more keepers. What's so powerful about a prototype? It's tangible. It focuses attention. It's visual. And it's external. You can criticize the prototype instead of each other.

In the days of factories and smokestacks, a prototype was a physical model, the sort of thing you sent in with your patent application. In today's world of ideas, the prototype may be a spreadsheet or a rough sketch.



Group graphics are similar to virtual prototypes, for they are an external representation of ideas. Imagine a senior management team is discussing a new strategy. A business artist is simultaneously translating their discussion into large, wall-mounted drawings. Paper murals. Periodically, the group checks the murals and the relationships it implies. Is that what we meant? Is there a better way? The group tries to make the picture right instead of trying to score

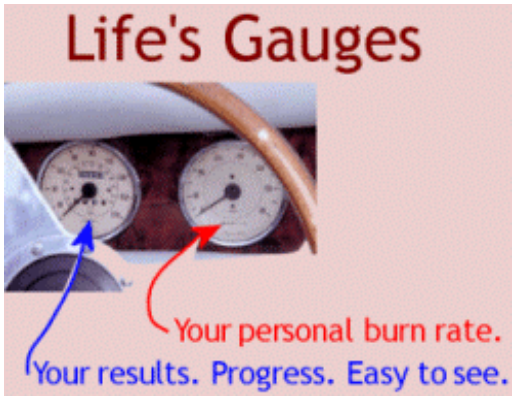
political points. When they have concluded, a re-drawn map is a way to communicate the substance of the meeting throughout the organization.

The graphics can even provide a coherent framework for the meeting. There are only so many meeting archetypes. Instead of starting with a blank sheet of paper, a group might begin with a template for capturing, for example, gap between actual and desired state, competitive threats, changes in the marketplace, and so on.

Open Your Eyes

The impact of visual learning will be staggering

My experience with eLearning tells me I need to be cautious here. Many people equated eLearning with learning via computers. Since it's obvious that computers can't bear the entire load, computers plus humans became known as taking a "blended approach." I maintain that sound eLearning has always included more than just the computer elements.



In proselytizing visual learning, I am not suggesting we convert all training programs into pictograms, charts, and cartoons -- good positioning in a global marketplace but for the fact that it wouldn't be very effective. The role of graphics is to supplement written presentation, not to eradicate it.

As I see it, there's immense opportunity here. First of all, visuals accelerate the learning process, and time is worth more than money. Second, no large players are paying attention to this market; they just don't get it. I suspect that understanding abstract art and interpreting financial statements are mutually exclusive skills.

I am jazzed by the possibilities and drawn to the topic like the moth to the flame.

Envisioning Learning is the topic of eLearning Forum for April 2002. I'm looking forward to learning more about visual learning and sharing my personal enthusiasm on the topic. To share the lessons with others visually, I plan to issue a CD of the proceedings.

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Design at Internet Time Group