

Conceptual Blending and Integration in Design Thinking

Jerry Diethelm – Oct. 2012

Cognitive science continues to uncover new ways to think about design thinking. Perhaps the most significant is called conceptual blending, an imaginative capacity that supposedly makes us humans geniuses compared to the rest of the animal kingdom. The difference that makes this difference is the power and use of our imagination.

It was the expansion of this imaginative capacity in the Upper Paleolithic that enabled the creation of the art, science, mathematics, religion, dance, language, technology, and fashion... - that distinguishes modern human culture, according to Gillis Fauconnier and Mark Turner, authors of the book, *The Way We Think*, (2002)₂

Conceptual Blending and Integration

What then is conceptual blending and integration? How does the process animate, blend and integrate the human imagination? How does conceptual blending and integration relate to design thinking? How might the concept impact design education?

Fauconnier and Turner describe conceptual blending and conceptual integration as a fundamental mental structure that underlies and enables the associative process of metaphoric thinking and far more. "Conceptual integration," they assert, "is at the heart of imagination," and double-scope integration, the highest form of conceptual integration, is "the hallmark and the engine of the distinctively human imagination."

In a chapter in *Imaginative Minds*₁₀ entitled, "The Way We Imagine," Mark Turner explained conceptual integration as:

"a basic mental operation, in which input conceptual arrays are 'blended' to produce compressed, memorable, conceptual packets, congenial to human thought, often with emergent structure not available from the input conceptual arrays....A double-scope integration network has input conceptual arrays with different, often clashing, organizing frames and an organizing frame for the blend that includes parts of those organizing frames and emergent structure of its own."

Clashing blends, he says, can offer "conceptual challenges" and "the resulting blends can turn out to be highly original."

In their above-mentioned book and many articles, they draw examples from all corners of the culture to explain the operation of the blending and integrative process.

Take for example, talking animals. We have a mental image of a human being and another, say, of a duck. Mentally overlay the two and ascribe the human qualities of the one to the other and we have the blend of a talking duck, an emergent phenomenon that every child enjoys while knowing there is really no such thing.

This child's play is our Paleolithic heritage. Double-scope integration involves additional parlays on the blend. The duck is a miser who hoards his money. Misers swim in money.

Uncle Scrooge Mc Duck, Donald Duck's brother in the Disney comics, is portrayed as a miserly, parsimonious, coat-and-tails wearing, talking duck, who dives through his pool of money.

In another example, Turner describes a man attending a friend's wedding. At the same time he is remembering a wonderful vacation he just had at the beach with his own lover. Playfully he superimposes the two of them over the bride and groom in the ceremony and realizes something new about the future of his own relationship.

In yet another example, conceptual integration is baked into the statement, "Over fishing is taking food off our children's plates." Un-blending shows the integration that took place between families having enough food to eat now and at some future time with trends in overfishing today.

Television advertising is taking very seriously the power of blending. In a recent commercial for Miracle Whip, a woman walks into a 17th Century town square in Puritan Salem and is set upon by the townspeople, who are of one mind that her kind isn't wanted there. She has a scarlet mark on her breast. And of course the mark is an **mW**. She is branded with a brand. For Hawthorne insiders, she is Hester Prynne with her red cloth shaped into a scarlet A with all the sexual innuendo that implies. "You should try it," she asserts. "It is tangy and sweet." And we should, "keep an open mouth." She is of course talking to the close-minded mayonnaise lovers and is saved from the rabid townspeople by a town leader who opens his black coat authoritatively to show his own scarlet mark and declare, "She speaketh the truth!"

I suppose one has to include puns as a further example. In London, during the time of Isaac Newton, a public expression of disbelief in the trinity – perhaps our most famous religious blending – would have meant a trip to Newgate Prison to be disemboweled while still alive and one's head stuck on a pike on London Bridge (not to put too fine a point on it). It is this visceral horror beyond polite groaning that is being called up when we are told, "a good pun deserves to be drawn and quoted."

Metaphor in Designing

Understanding that metaphor was more than a trope and not merely a colorful way of writing and speaking, helped clarify some aspects of design thinking. Designers have always "pumped qualities" (Lakoff) from one thinking domain to another whether they realized it or not. Expressive assertions such as wood is warm and concrete cold or that a low wall is a seat are so metaphorically common as not to be noticed.

And designs are often metaphorically complex, dense and mixed. That same wall, for example, might be *seen as* many things and *as belonging to* numerous relationships simultaneously. It might serve as an important boundary as well as a seat, its location and construction expressive of the history of the place. It might also be a marker, and a divider, and a barrier, and a shelf, and a prospect, and a gallery and so on. I've described this "and-ness" elsewhere as metaphoric density in designing and speculated about increasing metaphoric density as a designerly strategy toward wider affordance. But richness of affordance isn't always wanted and not all kinds of design want to be metaphorically dense. The whole point of Minimalism, for example, was to sharpen the experience and the viewer's construction of meaning by putting metaphor in a vise.

Is there a more common metaphor in poetry than “love is a rose?” Who cannot call up the image of a rose with its wrap of fragrantly fused petals? Who has not wandered lost and confused in a maze? So when the poet, Theodore Roethke, writes, “Who knows/The way out of a rose?” conceptually blending and integrating the two, the rose/maze that emerges folds us deeply into the mysteries of love.

I wonder: are metaphors in designing like cloud chamber traces through the domains of physical blending, molding and mixing that goes on in the integrative, formative composition and expression of an artifact?

What I think conceptual integration fundamentally describes is the way that a process of design synthesis is not merely additive, but imaginatively blended and serially emergent. Such thinking helps us better understand, appreciate and explain the design experience of blending one thing with another and another until what emerges is at the intersection of just right. It provides a better way to think about “newness” in design, how designs (and their programs) evolve, about the workings of innovation, and the historical wonder of cultural speciation. It helps the often impatient understand why “Creation is a [such a] patient search.” (Le Corbusier)

Conceptual Integration and Design Education

It is this new appreciation of the importance of imagination in thinking that excites. I read this and can't help recalling Albert Einstein's famous “thought experiments,” in which the imagery of physicists falling in an elevator or riding on a beam of light leads to the emergence of such ideas as space-time and the unexpected universe of special and general relativity.

All this is of course nothing really new to designers, who might not have understood what they were doing but were blending and integrating imagery in their thoughts all along. My question then to my colleagues in design education is this: will a better understanding of the cognitive science of conceptual integration help us teach that part of studio work where possibilities mate, images hybridize, layers fuse and the characters run away with the play? Shouldn't this science of knowing how we do what we do add to the power of what we do and the way it is taught? Isn't this an opportunity to raise the octane on the teaching of the integrative magic of design thinking?

Imagine coming to design school after experiencing a typical education in which visual thinking as we have been describing it was under valued, under represented, and served mainly as an add on to the use of language. Imagine the delight of discovering that the imaginative thinking you naturally did, liked to do, and were always good at doing was OK all along. That it was more than just OK. That it was and always had been at the nexus of artifactual uncovering. That an evolving blended, conceptually integrative culture grew out of it and depended upon it. And, that it was something you could actually study, practice and perfect.

Imagine one day coming to a design school and finding that you were well prepared by your previous educational experience to continue to practice and develop your imaginatively integrative way of thinking.

Imagine one day looking up over the doorway to see a cuvée speciale, conceptual banner that proclaimed: **imagination is to thinking as wine is to grapes as art is to life.**

Entrance for everyone.

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