

## PEER-REVIEWED PAPER

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# Mediation as Message

## Design and the Media Ecology of Information

### ABSTRACT

Recent formal and informal discourse within information architecture (IA) and interaction design (IxD) suggests that the fundamentals may not be working as well as they used to. We interpret these concerns as opportunities and, by engaging with the principles and practices of media ecology, have perceived them for some time.

We propose that the problems projected onto IA / IxD fundamentals may not be with the fundamentals *per se*, but rather with the perceptual model that we used to create them. Fundamental methods are, after all, the consequence of dominant perceptions. We further propose that our current perceptual model is based on the perceptual biases inherent in print culture and that, as we evolve from a culture dominated by print to one inclusive of it, a new perceptual model for informing IA / IxD fundamentals is needed.

We suggest that media ecology provides a perceptual framework that can be used to correct the perceptual inadequacies of current IA / IxD design models (the fundamentals). Media ecology provides a flexible, contemporarily attuned, and human-centered *perceptual framework* for understanding and designing for emerging new media, new forms of mediation, and new forms of interaction regardless of the space (physical, augmented, virtual) where they occur.

### MEDIATION AS MESSAGE

Recently, concerns have started to brew over the long-term value of traditional human-computer interaction (HCI) and usability engineering models to information architecture (IA), interaction design (IxD), and design in general.<sup>1</sup> We interpret these concerns as opportunities and have perceived them for some time. Such concerns are opportunities, not only in the sense

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<sup>1</sup> Having started as informal discussions on IA / IxD related listservs, blogs, and other social media, these concerns have now migrated to formal discussion. Most notably in the May/June 2009 issue of Interactions magazine with its three articles under the heading "Rethinking the Fundamentals."

that they suggest existing methods should evolve and change, but in that they also leave the door wide open for new methods and new perceptions. Recognising concerns is easy once they begin to appear - you can see the cracks. Understanding why they appeared, what they might mean, and how they might be alleviated, well, that is a bit harder.

We suggest that in IA / IxD, and related fields, the cracks are the result of forcing a print culture model of perception onto post-print culture designs. Like the study of information in general, IA / IxD is moving into a time of the multisensorial and the all-at-once, with fragmentation and linearity giving way to holism and flow. Physical and augmented space is also becoming our concern. Print culture, a brief phase but with enormous perceptual consequences.<sup>2</sup>

We further suggest that media ecology provides a flexible, contemporarily attuned, and human-centered *perceptual framework* for understanding and designing for these emerging new media, new forms of mediation, and new forms of interaction regardless of the space where they occur. It seems that IA / IxD is about to outgrow some of its roots. This is healthy and should not be surprising.

*“The future is not what it used to be.” (McLuhan, 1972a)*

A concise overview of media ecology is provided. This is followed by the application of media ecology’s core tenets, of media effects and perceptual biases, to IA / IxD design-thinking and strategy. We situate this discussion using “mediation as message” as the analog to digital bridge between media ecology (analog) and IA / IxD (digital). Examples are provided to contextualise what appear to be abstract principles. We conclude by reviewing a prototype which demonstrates the application of “mediation as message” to IA / IxD design.

We are trying to present media ecology in general terms, but naturally it is impossible to realise its profundity without going through it oneself. We also maintain the integrity of media ecology by communicating it using a writing style from media ecology.<sup>3</sup> Consequently, as the manuscript progresses, aphorisms appear in likely places, but come from what might seem to be out of the blue. While these aphorisms may be intentionally disruptive to the reading experience, they are not for show. Their effect, and the effect of other, perhaps jarring uses of the print medium, are intended to be both important and memorable. It is, we think, when the rules of print are turned on their head, and the medium is *used* rather than conformed to, that the most important observations are to be found.

Considered cartographically, we’ve drawn up an incomplete map of a recently discovered territory and are presenting it in a style that might seem a bit

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<sup>2</sup> Print culture, as a dominant culture, began with Gutenberg’s press and now, with the decline of print, is being incorporated into something new.

<sup>3</sup> For additional examples of this writing style we suggest, among many others, the following texts: *The Gutenberg Galaxy* (McLuhan, 1962), *Verbi-voco-visual* (McLuhan, 1967a). *Through the Vanishing Point* (McLuhan and Parker, 1969a), *Counterblast* (McLuhan, 1969b).

foreign to those that maintain a strong perceptual bias aligned with print culture.<sup>4</sup> But that is the way it goes when introducing a new field into an existing one.

*“But even so, they had only a brief period of exploration and discovery before settling into a cliched pattern of repetitive thought.”  
(McLuhan, 1962)*

## MEDIA ECOLOGY

To the media ecologist, a medium is a technology within which a culture grows and an ecology is the interaction among the components of an environment (Postman, 2000). A media ecology, therefore, is an environment created by media, the interaction between the media and the content within that environment, and the corresponding effects of these configurations on that environment. A media ecology may be big (“the information age”), small (a graphical user interface), or somewhere in between (a city). Marshall McLuhan adds human intervention to the definition, suggesting that a media ecology may be designed through the purposeful “arranging [of] various media to help one another” (McLuhan, 1977).

Practising media ecology is not only an activity of recognising and investigating (research), but also includes purposeful (re)configuration (design). Some media ecologists are interested in researching the effects of media on the development of environments writ large. Tom DeZengotita, by looking at the effects of new media on contemporary American culture, does this well in his book *Mediated* (DeZengotita, 2006). Other media ecologists are interested in the historical aspects of media-induced change. Lewis Mumford (Mumford, 1934), Harold Innis (Innis, 1950), and Walter Ong (Ong, 1982) are often acknowledged for their exceptional work as historians of media ecology. Still other media ecologists are interested in extending the principles and practices of media ecology to the design or redesign of media or mediated environments. This would be us.<sup>5</sup>

For a media ecologist the “probe” tends to be the most widely used method for inquiry, analysis, and application (Strate, 2006). The probe as a formal method is derived from the work of literary critic and rhetorician I.A. Richards. It was Richards, while working at Cambridge University in the early twentieth-century, that developed practical criticism, and it was McLuhan, a few decades later, that would apply his version of practical criticism to the inquiry of media effects, biases, and our perceptions of them.

Richards developed practical criticism from a simple principle: we seldom read a text closely enough to fully understand its message. Instead, we tend to unknowingly get hung up on a few facets that covertly influence and shape

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<sup>4</sup> We think that there is value in using print in new ways and in doing so, respectively, bend its rules a bit. Old rules confirm the old ways and conceal the new ones. Print wants to change, if we'd let it.

<sup>5</sup> Author David Walczyk has been applying media ecology to IA / IxD design, and design-thinking in general, since the mid-1990's.

our perception of the text. These hang ups tend to be overlooked, under acknowledged, and reinforced by dominant perceptual norms.

Richards conducted his research using poems. He found that the perceptual model used by his students at Cambridge favoured the author and other contextual information (year written, place written) over the quality of the content and the writing. In other words, over the poem itself. Stated in the contrary, when Richards removed the author's name and other contextual hints (year written, place written), the students perceptual model, a model long dominant within literary criticism, just did not hold up. The students perception of what was good or bad poetry was being overshadowed by a few dominant criteria that no longer deserved the emphasis they were receiving. To Richards, it was the perceptual model used to interpret the literary texts, not the students themselves, that was flawed. Yet the students never reflected on the biases of the perceptual model they were using nor the need to update it and neither, before then, had Richards. They simply accepted it.

Shortly after Richards' study, he published *Practical Criticism* (Richards, 1929). The text shook the foundations of literacy criticism and evolved quickly into the New Criticism movement. New Criticism would go on to become the dominant style of literary criticism for much of the twentieth century (Murfin and Ray, 1997).

Marshall McLuhan, the father of media ecology, was a student of Richards. McLuhan co-opted practical criticism from Richards, and intensified it by incorporating into it the literary tools of aphorisms, puns, and metaphors. He then applied this updated version to the inquiry of media, and went on to call it "probing around" (McLuhan, 1968). If you have read any McLuhan, then you have experienced the deliverable of practical criticism applied to media ecology as a probe.<sup>6</sup>

Employed contemporarily, the probe is a flexible, even artistic, method that can be used to inform design. Using a probe to inform design is akin to, but more focused on identifying media effects, biases, and perceptions than, the design research methods used by firms such as IDEO.<sup>7</sup> In these instances, the observations and findings from the application of the method influence, perhaps even guides, a design.

Unlike more formal classification or quantitative methods, where the framework for inquiry is laid out in advance, and perception may be necessarily constricted, a probe is intended to open up an environment so that structures and patterns emerge on their own through(out) the investigation. In this regard, a probe alleviates a common structural bias of more rigid methods. With these sorts of methods you already know what you are looking for in advance and/or how you are going to structure what you find once you have found it. An obvious, but often overlooked, weakness of these methods is the purposeful exclusion of recognising and acknowledging observations outside of the methods frame of reference or its presentation

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<sup>6</sup> McLuhan also used the method for his own literary criticism. See McLuhan, 1969c.

<sup>7</sup> Readers may be familiar with IDEO's "Method Cards: 51 Ways to Inspire Design" published in 2003. But did you know that McLuhan published his own deck "The Distant Early Warning (DEW) Deck" in 1969.

framework. The probe method is purposefully designed to control for these weaknesses. However, like all methods, it has its own weaknesses. The most obvious being its lack of rigid structure (which also might be its most obvious strength). A McLuhan aphorism, nicely justifies the probe method:

*“Categories numb perceptions.” (McLuhan, 1971)*

## WHAT IS OLD, “THE MEDIUM IS THE MESSAGE”...

McLuhan was fond of his famous aphorism “the medium is the message.” But frequently he reflected that people did not really understand what he meant by it. Mainstream confusion with interpretation is not surprising to those familiar with his work. During his career, he reinterpreted it in innumerable ways. Often, at any given time, it was reinterpreted by McLuhan to suit the context within which he was working. In general though, “the medium is the message” can be interpreted very broadly, at the level of an entire culture, or more narrowly, at the level of a single medium.

A typical unpacking of this aphorism shows that a medium takes the information it contains (its content) and shapes that content in ways that are advantageous to the biases of that medium. This interpretation is the most common, and succinctly acknowledges that all media have biases and that these biases influence and shape not only the content which the medium contains but also the experience of the user. It also indirectly acknowledges that an effect of this influencing and shaping is some form of loss, and some form of gain, in the capacity of a medium to present and communicate content.

A concrete example of this interpretation is needed. Take the well-known phrase “all the news that is fit to print.” This can be interpreted literally as news that is worthy (“fit”) for printing. This interpretation, a common one, references the quality of the content. But the phrase can also be interpreted more literally. When this happens, allusions to “news” that has been “fit” to the medium of print emerge and the biases of print, as a unique medium, are formally acknowledged.

Probing deeper, “news” that is “fit to print” will be communicated within the biases of news print - visually, linearly, unalterable, fragmented into words, and perhaps including pictures. These sorts of biases represent some of the perceived strengths of news print as a medium.<sup>8</sup> But you are not going to get audio and you are not going to get video, because these are weaknesses of news print.<sup>9</sup> With such biases, something in the content and the experience to be communicated may be (and probably is) lost and something may be (and probably is) gained. With news print, for one thing, you lose collective experience and collective thought, since reading and writing for news print is an independent activity. But in return you gain independent experience and

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<sup>8</sup> Of course they may be weaknesses. This depends on the information to be communicated and the intended effect.

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independent thought, since reading and writing for news print tends not to be a collective activity.<sup>10</sup> Reflecting on this example in another way, we might generalise the interpretation to IA / IxD design practices, and by doing so gain some additional perspective.

Till recently, IA / IxD design practices have been more inclined towards the second interpretation, the reference to the biases of the medium. But that is changing with the emergence of content strategy and its emphasis on the first interpretation (a reference to quality). Framed in this way, the emergence of content strategy, as a discrete discipline, should not be surprising. It has identified a perceptual weakness in contemporary IA / IxD design models and is (trying to) correct for them. The challenge for content strategy is to integrate its new processes into existing IA / IxD perceptual models by updating them, while still maintaining their discretion.

*“A note in isolation is not music.” (McLuhan, 1972c)*

As media change, people change, and so do processes.

### ...IS NEW AGAIN, “MEDIATION AS MESSAGE”

While McLuhan’s aphorism “the medium is the message” still holds true today, at the time of its discovery in the early 1960’s digital media and digital interfaces only existed as research in a few labs. The mouse, and similar interfacing hardware, were also nascent. Interfaces and interaction tended towards the analog, not the digital.

McLuhan died in 1980. Perhaps this is why he declared “the medium of our time,” to be “electric circuitry” (McLuhan, 1968). McLuhan makes no mention of digital media or digital interaction. Instead, the environment McLuhan was observing, and commenting on, was decidedly electric and tangible (e.g., a light switch on a lamp post), not digital and interactive (e.g., a light switch button on an iPhone device).

Recognising that McLuhan was not alive to observe and reflect on digital culture and its corresponding interfaces and unique forms of mediation and interaction, we extend and update McLuhan’s original aphorism to “mediation as message.” By doing so we are building an analog to digital bridge between media ecology (analog) and IA / IxD (digital).

*“The new media are not ways of relating us to the old “real” world; they are the real world and they reshape what remains of the old world at will.” (McLuhan, 1969b)*

### BROAD: MEDIATION BIAS AND EFFECTS

Mediation in general, and the amount of it in particular, is often a consequence of design rather than a conscious factor used in determining it.

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<sup>10</sup> And so Blogs are born.

Historically, this is not surprising. Cultures, it seems, have always been more concerned with the content of their mediation than with the mediation itself (Innis, 1950). A consequence of this bias has been, well, bias.

We seldom consider the biases inherent in our mediation. An emphasis on content, while ignoring the mediation and its biases, was summarised by McLuhan as giving our attention to that “juicy piece of meat carried by the burglar to distract the watchdog of the mind” (McLuhan, 1964). These sorts of distractions, when prolonged, can have devastating consequences. Take, for instance, libraries.<sup>11</sup>

For the past 500 years, since Gutenberg built his first press, libraries have been tethered to a single form of mediation - printed pages bound into books. Betting on a single form of mediation has, historically, never been a good idea (Innis, 1951). No other nation in the world has so much of its creation, and subsequent history, tied up in the mediation of information by the printed book as does the United States (Chandler and Cortada, 2000). Perhaps not surprisingly then, in the United States, libraries are on the skids.<sup>12</sup>

In the United States, libraries are hedging a bet that history suggests they do not even know they are making. Libraries there continue to overtly privilege printed books, while giving ancillary attention to other, readily available and emerging, forms of mediation that could through implementation mitigate the weaknesses of printed books. By failing to actively acknowledge and act on their bias towards printed books, American libraries are continuing a long-standing strategy that has finally become incompatible with American contemporary culture and its almost daily introduction of new forms of mediation. In consequence, these libraries now look outside themselves for strategic direction.<sup>13</sup>

From the perspective of media ecology, it is often suggested that a new form of mediation come into existence *because* of the weaknesses of other forms of mediation. Find a weakness and you have found yourself an opportunity. While new forms of mediation may transcend prior ones, they have a tendency to compensate for the old ones, not replace them, and by doing so carve out their own niche (McLuhan, 1964).

Applying media ecology to the American library problem would suggest that biases and effects of print have clouded the perception of original intent. Were these libraries to acknowledge that their core service has always been

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<sup>11</sup> Although the examples we could have used are perhaps endless, we concluded that the plight of libraries is something that many readers, particularly those interested in information, could relate to.

<sup>12</sup> At the time of this writing, citations in the United States popular media of this fact were endless to the point of library plight having become common knowledge even to the layperson on the street. We suspect that, from our perusal of popular media available online from other countries, that this plight, while not isolated to the United States, is being experienced particularly severely there.

<sup>13</sup> For instance, we hope you recognize the irony in New York Public Library bringing in Jeff Jarvis author of *What Would Google Do?* (HarperBusiness, 2009) to help them determine how the library should innovate. We suggest that libraries do not need to think like Google, but they do need to think differently. Some have, others will have to.

understanding and designing access to information using the most appropriate forms of mediation given the circumstances, they might be on the road to meaningful change. It has never been about the books, rather it is always been about mitigating weaknesses and building from strengths by recognising the biases of forms of mediation and anticipating their effects.

*“Thinking as we do in book terms, we are unable to read the language of technological forms.” (McLuhan, 1953)*

But these sorts of mediation-induced skids are not new. They are not all that different from those experienced 500 years ago, when scribes with their parchment, were obsolesced by printers with their books. The scribes actually thought that the printing press was going to be a boom to their careers (Havelock, 1988).<sup>14</sup> Yet, they were ill-equipped pragmatically *and* perceptually to make the switch.

And these skids, they are not all that different from 2000 years ago, when orality was replaced by the written word (Ong, 1967). Even with a warning about the consequences of writing from Plato, we gave up on orality for literacy sake with little reflection on the broad consequences.<sup>15</sup> To the imperceptive, all things are sudden.

*“The new technological environments generate the most pain among those least prepared to alter their old value structures.” (McLuhan, 1969)*

Considering IA / IxD for a moment. We may have a similar skid brewing.<sup>16</sup> Over-emphasis on the browser and browser-based forms of mediation risk becoming our equivalent of the printed book. But if we lift our head out of the browser for a bit, and take a lot around, we might notice something. That kid with the WiiMote, that baby boomer or teenager with an iPhone, that hacker coding an Arduino, and that artist capturing XML streams with Processing, are all thinking about and interacting with information in fundamentally different ways than mainstream IA / IxD models might be suggesting.

Probing a bit deeper, the dominant IA / IxD perceptual bias seems to be towards the visual and the linearly systematic, at the expense of the multi-sensorial and, at times, disjointed ecological. We are all surface, without the depth - information has roots. In a similar way, perhaps we are not preparing ourselves for the evolution of our own field, IA / IxD in physical and augmented space. These sorts of spaces require different (or at least refined) perceptual models. The mediation they use, for example GPS-data, gyroscopes, and RFID chips, have their own biases and their own effects.

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<sup>14</sup> How many scribes do you know?

<sup>15</sup> See Plato's Phaedrus.

<sup>16</sup> Historically they are inevitable, but their disruptive effects can be mitigated.



## NARROW : EFFECTS OF PERCEPTION

In those rare instances when we do consider the biases of new forms of mediation we tend to do so, unwittingly, using our perception of old mediation. For instance, TV and magazines look pretty good on the web. The web in magazines, not so much (perhaps someday though).

To illustrate, an example. It was not until after photography was discovered and perceived as an improvement on painting, that painting was opened up to abstract form. Yet, it is obvious to us now, in retrospect, that abstract painting, and similar styles that distort the image, were always there, waiting to be perceived and actualised. Photography freed painters to become something else and eventually, generations later, computer graphics would make it OK for painting, by way of realism and photorealism to incorporate photography.

*“Only children and artists can see the emperor’s new clothes.”  
(McLuhan and Nevitt, 1973)*

That we tend to introduce new forms of mediation while looking in the rearview mirror for inspiration is not surprising. For how else do we learn what new mediation is, or might be, without some sort of perceptual frame of reference from within which to situate and understand it? The problem is when we get stuck in the old perception and deny new forms of mediation their biases - their own unique perceptual experience. When we look in the rearview mirror for too long, we negate the strategic necessity of recognising and understanding the inherent biases, and the possible side effects, a new mediation might have on content (among other things).

Not recognising, nor understanding, the biases of mediation and their potential effects might be fine for “users” (although it is not, but that is another story), but for IA / IxD not so much. For IA / IxD, it is the biases of mediation that are the determining factors of what can and cannot be done with the information we are architecting and designing interaction with. For an IA / IxD designer, conscious awareness of mediation biases, along with the ability to design for the biases strengths, and mitigate their weaknesses, would seem to be a vital skill.

To reiterate an earlier observation, recent discourse within IA / IxD suggests that the models we employ are not working as well as they used to.<sup>17</sup> Media ecology would suggest that existing perceptual models, perceptual models based on older forms of mediation such as the print-inspired web browser are the cause. As mediation changes, people change, and so must their perception.

*“It is precisely because of the breakdown of a form that it becomes understandable for the first time.” (McLuhan, 1972c)*

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<sup>17</sup> See note 1.

Frequently, it seems, we do not even recognise the necessity for perceptual change until after the change has occurred. We reflect on what happened rather than anticipate what is happening. As the mediations that IA / IxD designs for expands, an equally expanding conscious awareness of biases and effects becomes a strategic tool for both selecting appropriate mediation and anticipating and planning for its effects on content (among other things).

## APPLICATION: COUNTERBLAST AS PERCEPTUAL PROBE

Prototypes were developed that demonstrate the application of mediation as message to IA / IxD design. The content used for the prototypes was the archive of Skart, a contemporary art collective from Belgrade, former Yugoslavia.<sup>18</sup>

*“The term COUNTERBLAST does not imply any attempt to erode or explode ... Rather it indicates the need for a counter-environment as a means of perceiving the dominant one.” (McLuhan, 1969)*

We used the Skart archive to construct contrasting mediated environments. The first one as a proper environment and the second one as its counter-environment. Both versions mediate the same content, and, on the surface, both look exactly the same when you land on them (Fig. 1).

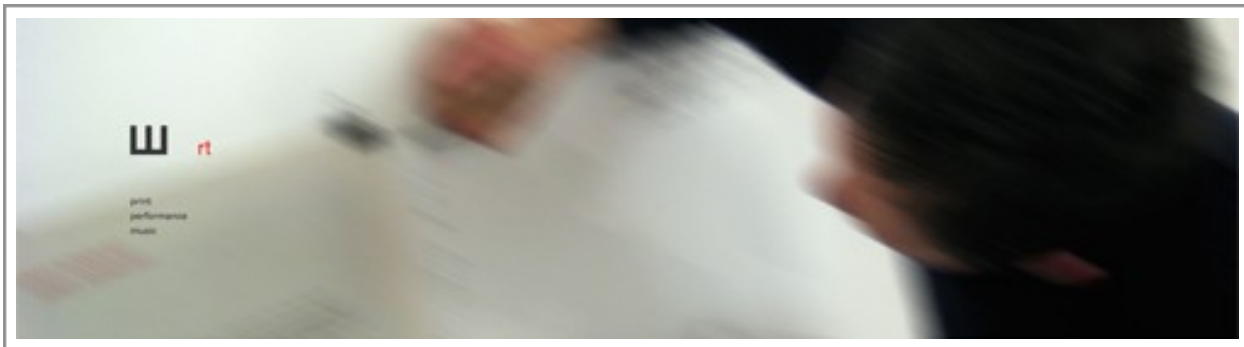


Figure 1: The landing / start page for both versions

The mediation of the first version is shown in Fig. 2. Here the mediation is linear, up and down, and page to page. It reinforces existing IA / IxD ideals as to what mediation of information within a browser should be like. What it does not do is take advantage of biases inherent in the browser as a unique medium. Instead, its mediation is (purposefully) a lot like print-based media. By functioning the way it does, it reinforces a strong print culture perceptual model and its associated biases. Specifically, biases for how we should interact with information - linearly, up and down, fragmented, and in some sort of concrete sequence (from page to page).

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<sup>18</sup> For additional information on Skart, visit <http://www.culturebase.net/artist.php?677> and [http://www.cincplug.com/skart/cv\\_e.php](http://www.cincplug.com/skart/cv_e.php).

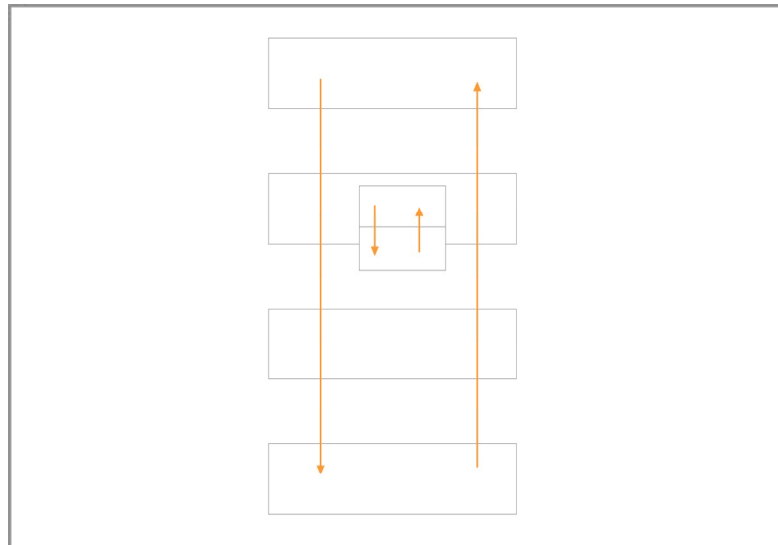


Figure 2: <http://mysite.pratt.edu/~dwalczyk/skart/site/01.html>

Contrast this with the mediation used for the second version shown in Fig. 3. In this version an internal logic is maintained and a fundamental bias of the browser as a medium is exploited. Specifically, its capacity for controlled, transparent, and immediate non-linearity - a bit more (purposefully) abstract.

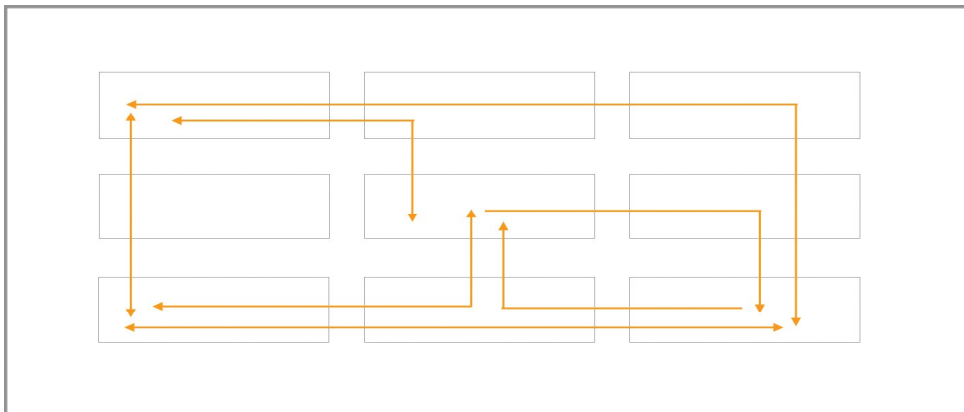


Figure 3: <http://mysite.pratt.edu/~dwalczyk/skart/site/02.html>

After developing the contrasting examples for Skart, programmatically not an easy task, we were interested in how IA / IxD professionals would react to them. Specifically, what language would they use to describe these contrasting forms of mediation and what would this language imply about the perceptual model they were using to evaluate them. We asked a sample of IA / IxD professionals to complete a simple task for each of the designs: “while you are navigating, take a few concise notes on the mediation and its effects on content. No more than 50 words please.” The reviewers were given links to the sites and not shown the navigational designs presented in figures two and

three. We received responses from 8 of 11 IA / IxD professionals. While the task was as intended as a probe, not as a formal study, for those interested we note that the number of responses was well within Jakob Nielsen's testing range for making credible observations (Nielsen, 2000).

*"If they made merely inventories, they didn't have to use any ideas, they didn't have to reach any conclusions, they merely were invited to observe, to make inventories of effects." (McLuhan, 1966)*

First version (figure two) comments emphasised consistency with "UX best practices." The mediation of the content was described as "linear," "regular," "vertical," and "clearly support[ing] the content." One reviewer noted that it provided "little sense of the big picture." This observation was insightful since "little sense of the big picture" is a verbose way of acknowledging the perceptual bias of linear fragmentation. For the second version (Fig. 3), comments emphasised "inconsistency." The mediation of the content was experienced as "random" and "disruptive." The word "motion" was used to describe perceived "abrupt[ness]." One reviewer noted that it provided a "map-like feel," "something that fits together as a whole." This observation was insightful as well, since the design was a whole and did have a "map-like feel" of discovery.

This informal study, a small probe, when interpreted from the perspective of media ecology, suggests that IA / IxD may still be a bit too print-oriented in its perceptual model. It also suggests that IA / IxD may lack the appropriate language for describing, debating, and prototyping abstract forms of mediation, particularly those not tethered to print culture. Additional research, a broadening of the study, would be needed for conclusive evidence of perceptual bias. But the inklings are there.

That the fundamentals of IA / IxD are being debated is a start. However, we should not expect a projection of dissatisfaction onto the fundamentals to provide a solution. These fundamentals are, after all, the consequence of models of perception. Traced backwards then, if the fundamentals are becoming outdated then so is the perceptual model. This suggests that the biggest problem may not be ideological but rather neurological and that IA / IxD may be suffering a bit from a case of the hardening of its categories.

*"Future shock, in fact, is culture lag, that is, a failure to notice what is happening in the present." (McLuhan, 1972)*

## POETICALLY PRAGMATIC

Poetically stated, every new mediation expresses its own message in its own ways. Pragmatically interpreted, every new mediation has its own biases, its own effects, and requires a reflective language and refined perceptions when working with it and designing for it. Unfortunately, history demonstrates a consistently unconscious reaction to these sorts of changes rather than conscious awareness of them (Postman, 1992). Yet conscious awareness does have value, and it is the responsibility of IA / IxD to not only be aware, but to also design mediation with awareness in mind.

*“Awareness as a strategy has something going for it. Awareness of the present, not the future, has a lot to be said for it in preference to our usual habit of looking in the rear-view mirror.” McLuhan (McLuhan, 1967)*

Media ecology provides a poetically pragmatic framework for designing in such a way. It is flexible, upgradeable, intellectual, theoretically grounded, and engages creativity rather than restricts it. Media ecology provides a middle ground between theory and practice, something that may be needed in IA / IxD.

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