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A Cognitive Analysis

The Advantages of Print over Digital Media

With e-mail, e-books, and e-everything dominating the communications landscape, many pundits have gone so far as to announce “Print is dead.” Such a declaration, however, is not only premature but downright wrong.

Sumerian cuneiform, Chinese calligraphy, Irish illuminated manuscripts, movable type, web presses—for centuries, people have used hard-copy formats to document their lives and communicate their ideas. Over the past couple of decades, though, digital formats have been in ascendance. “Thanks to the Internet and its medium of digital text accessed via personal computing devices,” points out Barry W. Cull, “most people are reading very differently today than they were in the very recent past” (2011).

Two main factors have motivated the trend toward digital: cost and ease. With their low upfront costs and simple-to-use distribution modes (particularly in this era of user-authored social media, blogs, and e-mail lists), digital formats have very wide appeal. Small companies consider them a “first step” marketing tool, and larger companies incorporate them into big-budget, multipronged outreach campaigns.

Companies that neglect print do so at their peril, however. Print continues to have a reach and accessibility unparalleled by digital efforts—a topic that researchers in many fields have been investigating for several years.

Different Modes of Interaction

Ziming Liu is one of many researchers who have extensively studied how people use documents.

In his recent book on the subject, he offers a detailed comparison of how people interact with print media versus how they interact with digital media. “Electronic media tend to be more useful for searching,” he writes, “while paper-based media are preferred for actual consumption of information” (2008: 54). In their work, he and many other researchers have highlighted several areas of difference between the two forms.

Haptics

Unlike digital media, printed works have a tactile element and thus are conduits for communication through touch, known as haptic communication. People hold printed material in their hands, turn pages to move through the content, and physically interact with printed works in numerous ways.

In his seminal review of the differences between print and digital media, Andrew Dillon writes that “paper is an information carrier par excellence and possesses an intimacy of interaction that can never be obtained in a medium that by definition imposes a microchip interface between the reader and the text” (1992: 1298). Although technological advances keep improving the functionality of digital media, that format still lacks the physical intimacy of paper—a shortcoming that explains, in part, why print is still a major player in the communications field.

Even though many newspapers and magazines have online versions of their publications, printed copies continue to be in high demand—despite the fact that hard copies cost money and digital copies either have reduced fees or are completely free to readers. The former editor-at-large of

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Slate, Jack Shafer, wrote an article about his print-to-digital-then-back-to-print conversion that echoes the experiences of many media consumers. One reason for his return to the print edition of his favorite newspaper: haptics. He writes, “I started missing the blue Times bag on my lawn and the glossy goodness of the Sunday magazine” (Shafer 2011).

Navigation and Topography

Numerous studies demonstrate that people respond differently to text on screens than to text on paper, and that these responses are subconscious—maybe even “hard-wired” into our brains—and not simply a matter of age-based opposition to new and different things. In a Scientific American article titled “The Reading Brain in the Digital Age: The Science of Paper versus Screens,” Ferris Jabr highlights recent research in information science, neuroscience, psychology, computer science, and other fields on how people process information they read on paper versus how they process information they read on screen. He points out that “such navigational differences may subtly inhibit reading comprehension,” adding that “compared with paper, screens may also drain more of our mental resources while we are reading and make it a little harder to remember what we read when we are done” (2013).

Ziming Liu’s research also indicates the importance of a text’s physical “geography” in helping readers navigate it:

Flipping and scanning (a reading pattern associated with printed documents) is not only a means

for locating information in a document, but also a means to get a sense of the whole text. Scrolling on a computer screen does not support this mode of reading and information processing. Readers tend to establish a visual memory for the location of items on a page and within a document. Scrolling weakens this relationship. (2008: 55)

Although not all scientists are in agreement on this subject, most studies indicate that people retain paper-based information better than what they read on screen.

The “chunked” layout of onscreen text often makes it easier to parse, but its lack of physical “landmarks” makes overall comprehension more difficult. Consider how often a reader comes across a long article posted online somewhere and prints it out to read it because he or she feels that onscreen reading would limit understanding or remembering of the content. Being able to flip back and forth between pages, to hold a physical item that changes appearance as one moves through it (e.g., early in a book or magazine there are more pages on the right, and as the reader nears the end his or her progress is marked by a stack of pages on the left), and to refer to the printed item’s topography to find information in it are all print features that onscreen media lack.

Making Connections with Readers

Neuroscientists, too, have examined the dif-

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ferences between print and digital media. In a recent study conducted for the UK Royal Mail, Millward Brown cites a study that used functional magnetic resonance imaging (fMRI) scanning to examine brain responses to stimuli. The study found that

greater emotional processing is facilitated by the physical material than by the virtual. The “real” experience that the physical media provides means it’s better at becoming part of memory. It generates more emotion, which should help to develop more positive brand associations. The real experience is also internalized, which means the materials have a more personal effect, and therefore should aid motivation. (2009: 3)

Joel Geske and Saras Bellur, too, found that the “flicker” effect of electronic screens affects readers’ attention much more than print media, writing that “subjects had to in effect, ‘work harder’” to read onscreen text than to read print material (2008: 418). This greater effort can make engagement difficult to achieve—and make readers less likely to try to achieve it.

The hypertext that gives digital media users immediate access to vast quantities of information makes it more difficult for users to remain engaged with a primary message. The nonlinear aspect of digital media “may also affect sustained attention and contributes to more fragmented reading, since each page has to compete with

many other pages for a user’s attention” (Liu 2008: 60). The nonlinearity of digital media as well as the ease with which its readers can move quickly and repeatedly among several electronic elements leads to a reading experience characterized by “online multitasking and lack of cognitive focus” (Cull 2011). Similarly, surveys by Ipsos MediaCT found that “while initial access [to digital media] is considered ‘easy,’ finding [one’s] way around is more ‘confusing’” (2011). And literacy researchers have found that the scrolling and clicking required to negotiate a digital text actually distance readers from the content (Mangen 2008).

Ultimately, It’s all about engagement. No messaging is effective unless it engages—and sticks—with its audience. By most measures, print has a leg up on digital media in this regard.

Attention and Engagement

Following up on Geske and Bellur’s findings on print’s ability to establish attention better than computer screens, Schijns and Smit conducted their own study that examined how people engaged the same content that was delivered in print and on a digital screen and found that readers in their own surveys spent about twice the time with content in print form than they spent with the same content in digital form (2008). Increased attention is linked to better recall, and researchers in the School of Communication and Journalism at the University of Oregon, in their study of how readers interact with the same material in print and digital forms, found that those who read print versions remember the content much better than those who read digital versions (Santana et al. 2011).

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And when people read texts—particularly those they want to remember—they often annotate or highlight them. Liu’s research finds that those two practices, which are mainstays of interactions with printed texts, don’t have real analogues in the digital setting (2008: 61). “It seems that many people search or browse digital documents,” he writes, “but when they need to have in-depth reading of some documents, they will print out and then annotate printed documents” (2008: 62). Although some digital annotation is possible, it still has a fairly low adoption rate. The inability to annotate easily (or even at all, in some cases) decreases some readers’ absorption—and retention—of content.

According to Gerlach and Buxmann, cognitive dissonance theory explains why many people fail to fully adopt—or even engage with—digital media over print: because they can’t engage haptically with digital media in the same ways they’re accustomed to engaging with print media, many people fail to achieve optimal efficiency and connection with digital media (Gerlach and Buxmann 2011). And where engagement is lacking, it’s much more difficult for messaging to get through.

Solutions

Clearly, there are tremendous advantages to using print media—both as a consumer or customer of marketing and as a marketer. But for some reason it remains the neglected cousin of digital media. What can be done to change this?

First, marketers must educate the public about the better engagement afforded by print than by digital media. According to the 2013/2014 MPA

Magazine Media Factbook, for example, “the average [magazine] reader spends 40 minutes reading each print issue” (2013: 13)—an attention rate far better than interactions than that obtained by Internet- and television-based media.

Second, marketers must increase awareness of the customization options available for print. A strong misconception prevails that the only cost-effective customization possible comes via digital methods. But print can have content, format, and distribution that are just as customizable as what’s possible with digital media.

Take custom and branded magazines, for example, formats that have seen steady increases in per-issue circulation numbers over the past few years as more organizations recognize their effectiveness (Qu 2013). In his research on using these publications to build customer loyalty, Fred Bonner describes their flexibility:

Modern printing techniques have introduced the concept of the personalized magazine. By segmenting a database, multiple versions of a publication can be targeted at customers with a particular profile (e.g., using insert modules, selective sections). This is an important development, as the magazines are bound in a way that allows different groups of customers to receive different editions. (2004: 149)

Thanks to technological advancements that continue to drive down costs, custom printing is become a more affordable option in the direct marketer’s toolkit (Schijns 2008). When both production costs and return on investment are factored, print can be just as cost effective (or

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even more so) than digital.

As digital media increasingly pervade peoples' lives, their effectiveness as communication tools is increasingly compromised: flooded daily with digital content, people are ignoring much of it. When content providers ask themselves, "How much digital content do people even notice? How much do they remember?" they're finding that often the answer to both questions is "not enough." During Shafer's year-long relationship with the digital-only version of *The New York Times*, for example, his discovery that "going electronic had punished my powers of retention"

(2011) compelled him to return to print.

Ziming Liu points out, "In the information-abundant world, attention becomes a scarce resource. People tend to be more selective when they face an overwhelming amount of information" (2008: 60). Organizations that understand how difficult it is to catch (and keep) attention—and choose solutions that best mitigate those difficulties—will be most successful at reader engagement. The more attention readers pay to content, the more they engage with it and remember it. And the best way to engage those readers? Put it in print!

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