

INFLUENCING THE FUTURE:
COMMUNICATION DESIGN OF 19TH-CENTURY U.S. MAGAZINES
AND ITS IMPACT ON 21ST-CENTURY INNOVATIONS
FOR AMERICAN LIFESTYLES

by

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DEDICATION

I would like to dedicate this project to my family for their long suffering support. Emma and Kameron Buchanon have offered encouragement and provided feedback; Kion and Kacen were patient and understanding that I was not as available as we all would have liked. Sarah Wingfield and Zac Farry thought of me and my project when they saw 19th-century print materials and bought them for me; they encouraged and Sarah provided feedback. Jennie Wittenbach set the example of going for a Master's mid-career. Together with Gerald Wittenbach, she provided insight and encouragement of the tasks at hand, as well as understanding about my lack of availability. Stefanie Wittenbach provided support and was a co-adventurer in the career-change game. Peggy Wingfield encouraged; she and Bruce Wingfield accommodated my time constraints. To Craig Wingfield goes my deepest appreciation for *everything* over all these decades.

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ABSTRACT

The role of communication design as key to the diffusion and adoption of innovation has yet to be examined. The relationship between communication design and innovation is critical to developments in many diverse fields. This paper explores the relationship between communication design and innovation with a review of U.S. historic popular magazines and current media. The review shows that communication design was well developed in the late 19th century in the U.S. Through design, imagery, and message, communication design of these popular magazines reflected concerns of the day and educated readers about new ideas and inventions. The *Ladies Home Journal*, 1889–1899, exemplifies ways that communication design engaged the public and helped mainstream new ideas and technologies. By looking at two different developments in the 19th century, and their counterparts in the 21st, this research supports the historical influence of communication design on the adoption of new ideas and inventions, which in turn drives the design cycle of innovation from past to present.

I. INTRODUCTION

Statement of Objective

Communication of some form is natural to all creatures, but innovation is largely a human endeavor (Brandt & Eagleman, 2017). The creativity of innovation, “the attribute that distinguishes us, as humans, from other species—is now being let loose on an unprecedented scale” (Florida, 2002, pg. 4). As a part of this creative effort, communication design has coexisted with innovation in an enduring association. Communication design (has been a key component of innovation from early industrialization to our current technological revolution.

The relationship between communication design and innovation has yet to be examined, even though it is critical to developments in business, computer science, health, machine learning, architecture, and other fields. This paper explores the relationship between communication design and innovation with a review of late-19th-century U.S. popular magazines and current-day media. Through design, imagery, and message, communication design of these popular magazines reflected concerns of the day and educated readers about new ideas and inventions. Communication design connects potential innovative ideas, methods, or technologies to people through the skillful use of design, imagery, and content. It provides a forum for feedback and support, helping move people to adopt the innovation into their daily lives. Familiarity generates demand for improvements; in response, makers innovate and the cycle continues.

Communication design of 19th-century popular magazines engaged readers with new ideas and inventions, helping to integrate them into the home. This assimilation into daily life created an ongoing cycle of engagement, adoption, and demand, which has influenced design and innovation well into the 21st century. By looking at two different developments in the 19th century, and their counterparts in the 21st, this research supports the historical influence of communication design on the adoption of new ideas and technologies, which continually drives the design cycle of innovation.

Comparative Audit

Technological innovations seem to be proliferating at an ever-increasing speed in the 21st century. It was also that way in the 19th century when industrialization disrupted the norm in American society. Many of the current-day advances in technology we enjoy are outcomes of sociological innovation over the past 130 years. Novelties such as cameras in doorbells, high-performance athletic wear, and prepackaged meal delivery services are commonplace for people of the 21st-century United States. Although adopted into everyday lifestyles within the past five years, they all have been evolving for over a hundred years.

It is possible to track changes through the 20th century. A clearer perspective can be achieved by focusing on innovative developments of the late 19th century and their current-day expressions in the 21st century. This research uses a compressed timeline to more closely observe the influence of communication design on the adoption of emerging innovations, past and present.

This study will review *Century*, *Lippincott's Monthly Magazine*, *Ladies' Home Journal*, and the illustrated, satirical *Puck* to explore representative magazines published in the United States during the late 19th century; each of these magazines was launched in the second half of the 19th century. Primary sources are accessible in print and in digitized form. The *Ladies Home Journal (LHJ)* of 1889–1899 serves as a representative sample for this study. Additionally, this research includes an investigation of print and digital media channels within the period of 2009–2019, such as Instagram, Facebook, broadcast television, streaming video, and popular print magazines.

Operational Definitions

Design. The term “design” has been evolving especially in the past 2–3 decades. Up until then, it could easily define outcomes that exist “between high technology and handmade crafts” (Margolin, 1989, p. 25). Today, the many areas that make up “design” are shifting and growing in response to rapid technological change. To reflect that fluidity, John Maeda proposed a working model defining 3 kinds of design: classical design,

design thinking, and computational design (April 2, 2019). Each of these labels essentially describes different types of work designers do, or how they do it. Design is more than a style or mode of making, but it has routinely been associated with commerce. Communication design (CD) supports innovation by connecting new ideas to people, through design, visuals, and message; CD helps make new inventions and concepts understandable. It is an attractive, accessible, visual medium that demonstrates how the unfamiliar can become familiar. CD is not above market forces, but its power goes beyond using type and image to compel consumers to buy the newest product or service. CD has made salient contributions using the same elements of type and image to engage people with new ideas and inventions. It also provides a venue for interchange, feedback, as well as for improvements. CD in the form of popular media includes, but is not limited to, magazines, newspapers, advertisements, social media, websites, apps, broadcast, video, and kinetic works. These materials utilize principles and elements of design, such as balance, hierarchy, and grid, together with strategic content (see Figure 1).



Figure 1. Examples of basic design elements and principles (Stribley, 2019).

Innovation. Broadly defined, innovation is the “introduction of something new; a new idea, method, or device,” (*Merriam-Webster Dictionary*, 2020). We have seen burgeoning new technological developments evolve and gain momentum, especially over the last 2–3 decades. Innovation, however, is not limited to technology. “Innovations effect

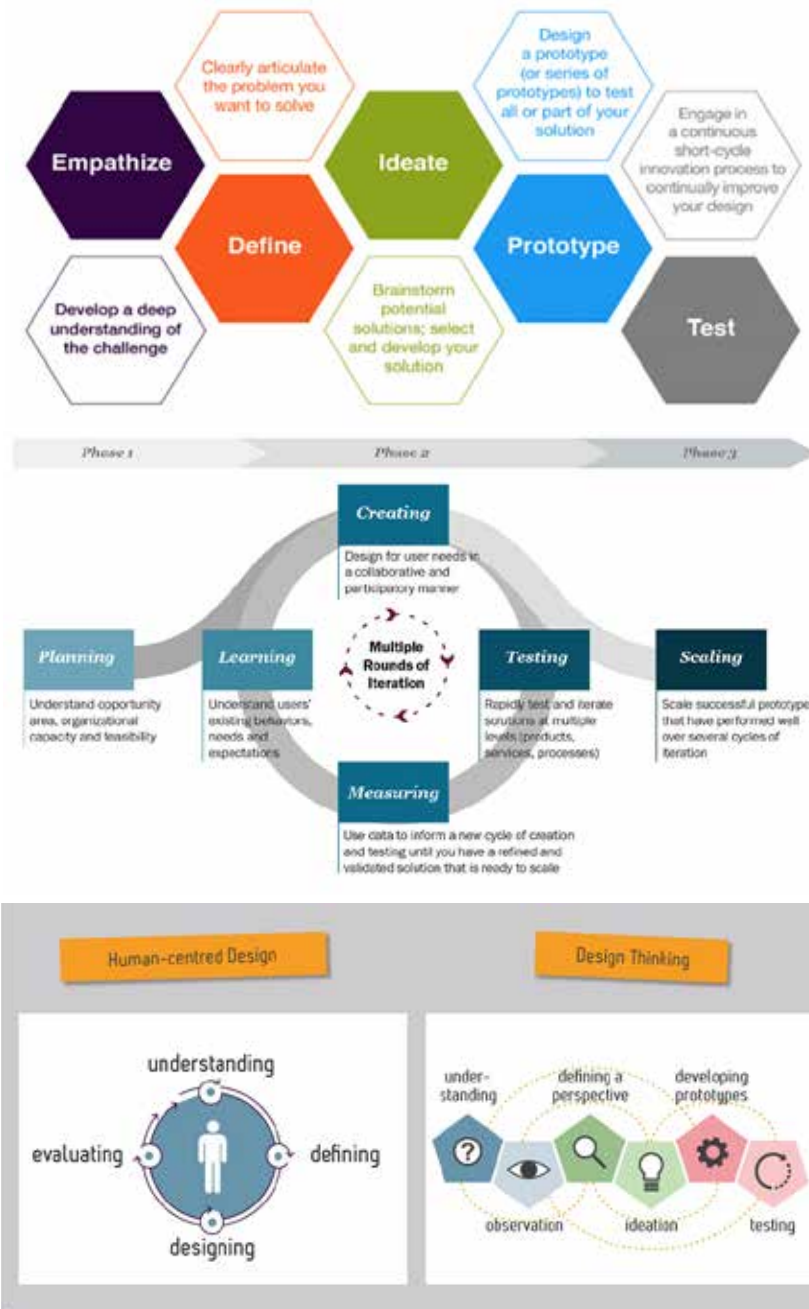


Figure 2. Three versions of design thinking/human-centered design process mapping.

some improvement (beyond the creation of something new) and this improvement can be incremental or transformational” (Bremont, Jr., 2015, pg. 11). It can include improved processes, such as on-demand ride-share services or new sociological directions such as environmental sustainability. However, ideas do not always become innovations, or even improvements, until they reach people (Berkun, 2010). Their value is in their adoption into regular routines.

Design Cycle of Innovation. Along with innovation and design, the evolving cycle of design development has progressed and been promoted across industries today. For the purpose of this study, design cycle is defined as a multi-faceted process of iteration—a recurring “sequence of operations” (*Merriam-Webster*).

All designers research and iterate, but the process was formalized and popularized as “design thinking” by proponents, such as Tim Brown, former CEO of design firm IDEO (Wilson, 2019). The purpose of the structured implementation of the design process is to help generate new or improved solutions for services, devices, and social inequities. Over time, different versions have been developed. The variations have slightly different terms and emphases (see Figure 2).

II. BACKGROUND RESEARCH: COMPARATIVE LITERATURE REVIEW

Design

19th Century. Most sources suggest that the inception of the field of “graphic design” was contemporaneous with the first use of that term in 1922 by American typographer and designer W. A. Dwiggins (Thomson, 1997, pg. 1). However, in the United States, “graphic design as a profession existed before Dwiggins’s article” (Thomson, pg 4). Graphic design in the 19th century fell within the printer’s realm, so most sources dismiss the skill and creativity evident in printed pieces of that time (Jury, 2012). Technologies transformed the printing and publishing worlds. As a result, the roles and titles of those who would become graphic designers also changed; this complicated the coalescence of a new profession (Thomson, 1997). Even so, the term “design” in relation to print materials was used in the 1890s. As Thomson relates, “The trade journals urged printshop workers to learn design: ‘There is a commercial value attached to good designing; it makes a workman of more use . . . he must have the imagination and the taste to originate or adapt a design’” (1997, pg. 62).

Many sources perpetuate a convenient summary that the graphic design field emerged in the 1920s (Lavin, 2001). Most published works about 19th-century graphic design in the U.S. link it to Arts and Crafts and Art Nouveau (Hollis, 1994; Meggs, 2006) with little acknowledgment, if any, of its already thriving existence. Many sources emphasize British or European examples and posit that the United States depended on European design models for precedence and creativity (Hollis, 1994; Long & Penick, 2019). One source, however, notes the influence of American design innovations, such as wood type and reversing type to white, in Europe circa 1830s (Jury, 2012). Authors lament the abundance of typefaces used in ephemera or mention the static, centered layout common in books (Meggs, 2006; Jury, 2012). In one source the value of the variety of typefaces and the experimentation of the era are considered “dubious” (Müller-Brockmann, 1971). In another case, an author makes a cursory mention of 19th-century media as she moves quickly to the early 20th century to explain the development of Modernist design (Wright,

2008). In these cases, the focus is on the look of the printed piece and little attention is given to the efficacy of the design, image, and editorial functions.

Sources that address the history of 19th-century periodical media focus on the newspaper. Some that focus on magazines in the United States at this time portray them as having helped create the new burgeoning middle class, or the woman as consumer (Peiss, 1998; Damon-Moore, 1994). Status and identity are often reported as the driving forces behind the consumer's purchases (Ohmann, 1996). When magazines are mentioned in these sources, they are germane to a more elite readership; they were more expensive and featured a narrower editorial focus than the lower cost, general-interest monthly magazines (Daly, 2012).

Fewer published sources about cultural or racial diversity magazines are available (Heuvel, 1991). Archival copies of the magazines themselves are also less available (Rooks, 2004). These sources focus on the challenges faced by the magazines, such as serving an emerging literate audience or balancing editorial emphasis within the societal climate of the time (Danky, 1998).

21st Century. The landscape of communication design has grown from print and broadcast to a gamut of digital outlets. Source literature on the design of media is almost as broad.

Design commentary exists across media. For example, a Netflix documentary series called *Abstract: The Art of Design* is available, as is a web magazine *dezeen.com*, and *Eye on Design* print magazine. Online and print materials offer tutorials for designing new media, including user experience for apps and websites. Articles about typeface selection, or the latest work by a new designer, are available across both print and digital media. Print magazines still exist, but most publishers have added online or interactive editions; publishers understand the business model can be “print *and* digital, not [just] print *or* digital” (Braverman, 2019). The American Institute of Graphic Arts began its newsletter as a digital publication first and introduced a print version later (AIGA). The publication hired

a guest designer for the inaugural print edition (AIGA). As leaders of a design publication, the editors would have understood that “with such intense competition among magazines for attention not just on the newsstand but in the home, a tremendous weight is placed on the magazine’s design to entice, engage, and grab the reader” (Heller & Fernandes, 1996, pg. 6). Heller and Fernandes further explain the value of design:

without design a magazine is merely a *mélange* of disparate elements; with it, it is a disciplined entity. Therefore, all magazines are designed in some way or another—for better or worse . . . The [good] is characterized by an overall intelligent scheme, including lively pacing (the manner in which the editorial material flows seamlessly from one story to the next), authoritative typography, sophisticated visuals, and an element of surprise. (1996, pg. 7)

Even with the endorsement for the importance of design, the authors make it clear that “when design works, it does so in harmony with editorial content” (Heller & Fernandes, 1996, pg. 8). This partnership of content and design helps entice the reader to engage with the publication and the information within it; this is true of online and digital media as well as print. Publications “use the power of design to communicate their messages” (Heller & Fernandes, 1996, pg. 9).

The explosion of media, produced by both professionals as well as amateurs, has created a problem of “clutter” (Gladwell, 2002, pg. 99).

There are now millions of web sites on the Internet, cable systems routinely carry over 50 channels of programming, and a glance inside the magazine section of any bookstore will tell you that there are thousands of magazines coming out each week and month, chock-full of advertising and information. (Gladwell, 2002, pg. 98)

This accounting does not include non-broadcast video streaming services and online gaming outlets.

With such a proliferation of media outlets, studies have been conducted to examine the effects of “new media” on “old media” (Vishwanath, 2015, pg. 175). Recent studies

indicated that “adoption of new media increases the time spent with older technologies” (Vishwanath, 2015, pg. 175). These results would suggest that “old media” of print and broadcast remain relevant as means of communicating through design, imagery, and message.

Innovation

19th Century. Innovation and change pervaded the late 19th century. Thought leaders of the time voiced their objections to “the dehumanizing aspects of mechanization and the lack of craftsmanship” (Raizman, 2004, pg. 66). Despite resistance, industrialization disrupted all parts of daily living and in all strata of society; “the machine thus found a troubled place in the culture of the times” (Trachtenberg, 1982, pg. 42). The integration of innovation into daily life gained momentum as inventors and merchants looked for ways to create improved processes, efficiency, or even “improved beauty” (Giedion, 1948, pg. 40).

Other sources about innovation in the 19th century discuss specific inventions, such as the telegraph. Often the stories of specific inventions are told within an exploration of larger sociological context and competitors (Standage, 1998; Rybczynski, 2000). These sources indicate little of how these inventions were communicated to the public, or how people became comfortable enough to adopt them into their lives.

21st Century. Much like the 19th century, society in the 21st century faces rapid change. “We are going through a similar period today” (Florida, 2002, pg. xiv). The topic of innovation is commonplace in media, especially in response to the proliferation of technological products and services. The spread of design thinking, with its goal to innovate, has also helped popularize innovation broadly. Print sources describe innovation as a developmental process built on multiple ideas (Berkun, 2015; Winston, 1998). Many online resources also exist (see Figure 3) to help explain what innovation is (Brement, 2015). An important “part of the value of an innovation is linked to timely adoption—it should be useful in the near future. In fact . . . unless the innovation is actually used by society, it cannot be called an innovation” (Brement, 2015).



Figure 3. Characteristics of innovation. (Bremont, 2015)

The popularization of design thinking has created a newfound appreciation of the value of the design mind. Consequently, communication designers have moved into leadership roles in large corporations (Maeda, 2019); they impact and initiate the innovation of apps, websites, interactive magazines, services, and solutions of social good. Designers also have expanded their purview to an innovative area which is currently called “design futures” (Davis, 2018). Design futures could be described as the conceptual exploration of potential long-term directions, “trying to create tomorrow’s [world]” (Winston, 1998, p. 11).

Science fiction suggests potential future worlds; it has long been a source of inspiration for innovation. This is evident in real-life examples of organ donation, palm-size phones, and other devices presented in futuristic literature or video/film, such as *Frankenstein* in the 19th century or *Star Trek* in the 20th. Yet, these fictional futuristic possibilities depend on forms of communication design for their conceptual diffusion into society—in a printed book or a marketed television broadcast or other media.

Design Cycle of Innovation

19th Century. The design cycle of innovation in the 19th century does not appear to have been formally publicized in the way that it is today. However, innovators were sure to secure patents for their developments, even for various component parts, to stay ahead of competition (Winston, 1998). Looking back over the development of communications technologies, Winston proposes that innovation and diffusion develop at a much slower pace than “revolutionary change” might suggest. His model considers the importance of

social influence to the adoption of innovations, identifying “supervening social necessities,” that work “on [the] prototypes to move them out of the laboratory into the world at large . . . which transform such prototypes into inventions” (1998, pgs. 6–7).

In the U.S., slow, social influence of adoption can be seen in one example of the many new processes described by Giedion: “The goal, a bath to every bedroom, stood little chance of rapid achievement. Indeed, the process took over half a century to complete” (1949, pg. 694).

It seems the “supervening social necessities” can differ by culture or geography. Gideon relays a comment by an English observer who reported that “domestic labor-saving appliances are more thoroughly appreciated on the other side of the Atlantic than with us. Patented appliances are more numerous in America for the same reason” (1949, pg. 685).

Original inventions may be created, but they tend to be an iteration or combination of previous ideas, rather than a wholly new work by a sole inventor (Berkun, 2010). It would seem that successful timing and acceptance of innovation by the “right people” have contributed to many innovations over time (Berkun, 2010, pg. 46).

The design cycle of innovation may not have been articulated in the 19th century, however, it laid a foundation for the iterative process of today; the successful outcome is the adoption of innovation by its intended users.

21st Century. The adoption of new ideas and technologies is closely tied to the design cycle and diffusion of innovation. Business is also an important part of innovation diffusion, adoption, and its design cycle. Sources explain the development of specific types of new inventions or classes of technology (Winston, 1998) and their lengthy path to adoption. In the same way that different design thinking diagrams have proliferated, various technology adoption cycles have circulated over the past several decades. Beginning with E.M. Rogers’ ground-breaking model of the 1960s, several sources examine the challenges associated with marketing “disruptive innovation” (Rogers, 1983; Moore, 2014). To

differing degrees, these diagrams (see Figures 4–8) emphasize the differences between the segments, which suggest manufacturers of disruptive technologies must adjust marketing efforts between the different stages of adoption (Moore, 2014; Rogers, 1983).

Gartner’s Hype Cycle (see Figure 6) indicates a series of highs and lows, culminating in a “plateau of productivity” (Gartner). When the Hype Cycle and the Rogers model are overlapped (see Figure 7), the differences and similarities can be better understood (Graves, 2016). A unique study repeats the Rogers diagram to demonstrate a process of continual, recurring innovation (see Figure 8), in place of a plateau or the downward taper (Badgley, 2014). These different diagrams are useful not just for new technologies; they also apply to new ideas and methods (Rogers, 1983).

Each segment of the technology adoption models depends on varying marketing and communications efforts that change over time (Moore, 2014). Outside of formal channels,

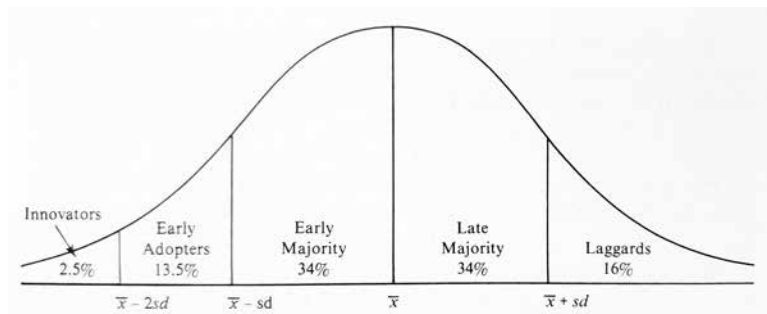


Figure 4. E. M. Rogers’ adopter categorization of innovativeness (pg. 247).

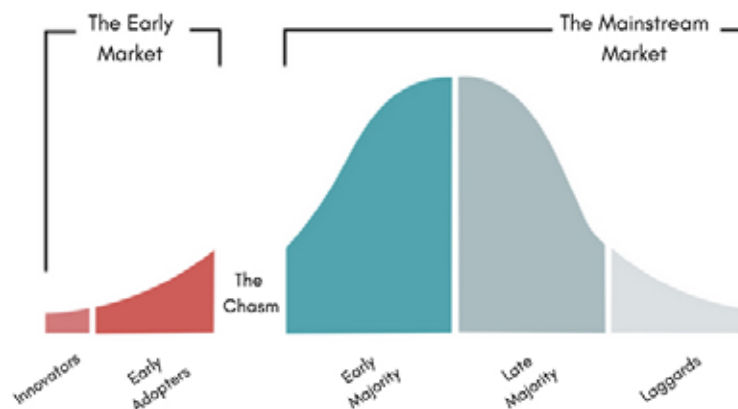


Figure 5. The Revised Technology Adoption Cycle. (Moore)

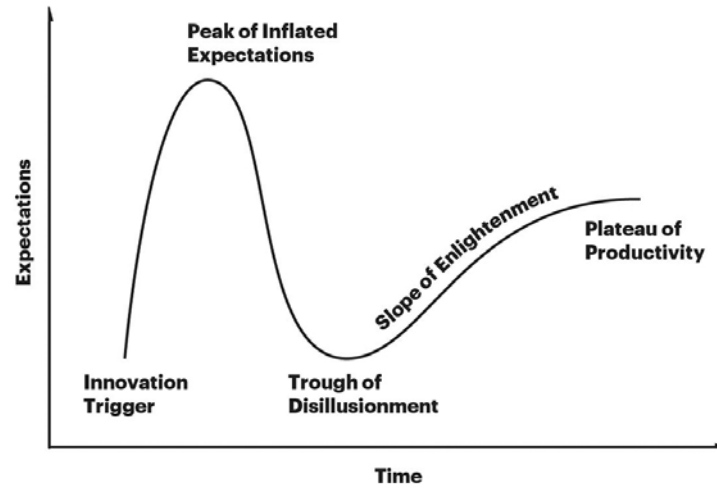


Figure 6. Gartner's Hype Cycle (Gartner.com).

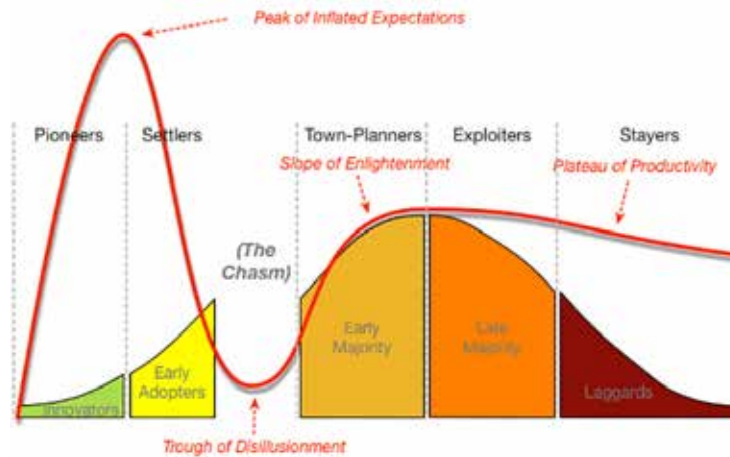


Figure 7. The Hype Cycle superimposed on E. M. Roger's adopter categorization. (Weblog.Tetradian.com)

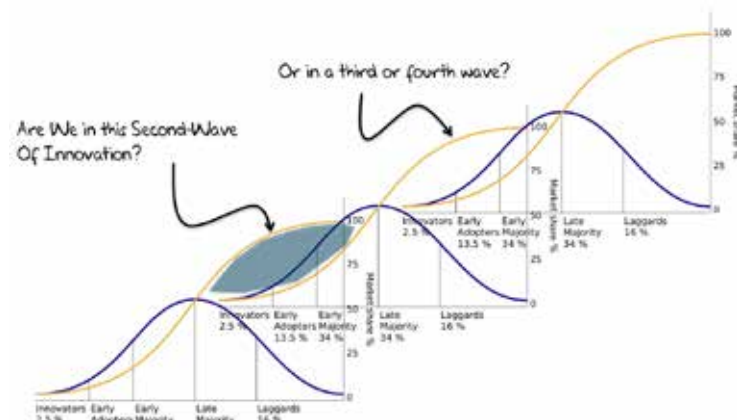


Figure 8. Innovation cycle that shows continual waves of innovation rather than the plateau of productivity. (Badgley)

word of mouth is identified as an important method that creates a network of support; this helps educate and encourage potential adopters (Moore, 2014; Rogers, 1983). The word-of-mouth contingent largely describes those who help “translate the message of the Innovators into something the rest of us can understand” (Gladwell, 2002, pg. 203). The sources focus on word-of-mouth as an in-person activity, without acknowledging other means, such as interactions mediated by digital or print communications.

Business development diagrams (see Figure 9) have also proliferated, such as Business Model Canvas and a successor, Lean Canvas (Greenwald, 2012; Maurya, 2012). These canvases include a segment for communication channels, but they largely seem to incorporate a more business-focused “top-down” approach, rather than helping educate and encourage potential adopters (Vishwantha, 2011, pg. 203).

These diffusion diagrams and business canvases focus on an either/or, “binary logic of adoption,” where a person either does or does not adopt the new technology (Vishwanath, et al., 2011, pg. 62). Unrepresented is a “phenomenon of Re-Invention”—a point in the process where the user is creatively “making sense of the innovation in question, appropriating the innovation” (Vishwanath, 2011, pg. 63). This suggests the adopter can move the plateau of productivity into ongoing iteration, through demands, creativity, and assimilation into daily life; “adopters are themselves mediators in the process of change” (Vishwanath, et al., 2011, pg. 221).

These diagrams are abstract illustrations that incompletely depict a complex, multi-faceted process—a process that is iterative and evolving. “In today’s economy, creativity is pervasive and ongoing: We constantly revise and enhance every product, process and activity imaginable and fit them together in new ways” (Florida, 2002, pg. 5). This supports the concept of the user, as much as the innovator, as an agent who creates changes, demands, and networks of support.

The role of communication design as a key component of the diffusion and adoption of innovation is not fully addressed in the business canvas or diffusion models. Business

III. COMPARATIVE AUDIT OF POPULAR MAGAZINES/MEDIA

19th Century

Background Review. A greater common awareness of design increased as industrialization expanded and became pervasive in western cultures. Building on a past culture of printed materials, the mechanization of printing led business-savvy publishers to create low-cost, special interest magazines in the 19th century (Tebbel & Zuckerman, 1991). Popular magazines, those for the general reading public, also benefited from the favorable changes to U.S. postal rates and regulations of the mid to late 19th century, which made much wider distribution affordable (Schlereth, 1991). New magazines, unlike any print media seen before, appeared in the national market combining “width of popular appeal with such seriousness of aim and thoroughness of workmanship” (Schlereth, 1991, pg. 186).

Toward the latter part of the 19th century, U.S. publishers lowered subscription rates dramatically, helping create “mass-market products out of magazines” (Tebbel & Zuckerman, 1991, pg. 66). Even accounting for magazines that did not last, figures indicate that between 1885–1905, “nearly 11,000 different magazines had been issued” (Tebbel & Zuckerman, 1991, pg. 68).

Communal interest groups published magazines across demographics, language, ethnicity, gender, and income level. The reduced costs and improved distribution “lowered the barriers to entry for all kinds of magazines; this had an especially strong impact on the viability of magazines that targeted specialized audience segments” (Haveman, 2015, pg. 59).

Immigrant press in native languages proliferated. “Reading skills improved throughout the 19th century mainly through self-motivation” (Robertson, 2013, pg. 45). Books and popular periodicals were important to immigrant communities despite stereotypes of illiteracy. By the end of the 19th century, “over a thousand periodicals in languages other than English had a total circulation of over six million” (Danky, 1998, pg. 18).

A similar misconception existed about the African American press of the time. “A variety of periodicals written, edited, and owned by blacks had been available for most

of the nineteenth century” (Tebbel & Zuckerman, 1991, pg. 39). This included *Douglass’ Monthly*, founded by Frederick Douglass in 1858 (Tebbel & Zuckerman, 1991). As with other periodicals, many magazines ceased operation during the Civil War but began again afterward (Tebbel & Zuckerman, 1991). Many black periodicals were supported by churches or Christian organizations, others were founded by individuals (Tebbel & Zuckerman, 1991). These, like the immigrant press, served an emerging literate constituency. All periodicals initially faced struggles attracting advertisers to supplement subscription income “to make publishing profitable” (Tebbel & Zuckerman, 1991, pg. 132).

Overall, the magazine industry of the 19th century grew rapidly in the United States in terms of numbers of titles, circulation, and geographic area. The number of magazines grew five-fold, in the 20 years between 1865–1885, to over 3000 titles. “In 1885, periodicals in this country [U.S.] had developed well past their English counterparts in nearly every respect—a lead never to be relinquished” (Tebbel & Zuckerman, 1991, pg. 66). A confluence of factors including production of goods, increasing literacy, advertising industry, editorial and pricing strategies, growing population, and distribution channels contributed to the rapid and lasting lead (Ohmann, 1996).

The proliferation of magazines disseminated ideas to the expanding literate public about design, science, philosophy, commerce, and emerging social changes. These magazines were the social media of the day—informing, mirroring, and changing popular opinions and demands. The medium embraced the visual technology of the era; the attractiveness seduced readers to directly interact with communication design and the ideas it conveyed. This was true not just for experienced readers, but “to early readers, the material quality of the object they handle is as powerful as the text itself” (Robertson, 2013, pg. 45). In the U.S. by 1890, social scientists understood the power of magazines “in shaping the thought of their mass audiences” (Tebbel & Zuckerman, 1991, pg. 83).

To add to the visual appeal of the magazines, editors and advertisers utilized the newest technologies available for using varied typography and imagery in their publications.

Type designers in the U.S. had innovated the use of wood for creating type sets, leading to the availability of a wide variety of experimental fonts that were faster and less expensive to produce (Jury, 2012). Some measures indicate that illustrative material was as much as 15% of the publication (Tebbel & Zuckerman, 1991). The development of halftone screens made it possible to reproduce continuous tone photographs in printed media, which was less expensive than the wood and metal engraving processes. (Sloan, 2005)

Each of the 19th-century publications under review (*Century*, *Lippincott's*, *Puck*, and *LHJ*) shows interest in literature as well as international activities, ideas, personalities and, to varying degrees, fashion, new technologies, and developments in science. They also include articles of innovative thought by Americans. One example is Louis Sullivan's essay, "The Tall Building Artfully Considered," which was published in 1896 in *Lippincott's*. In his essay, Sullivan used the phrase, "form ever follows function," a version of which became associated more than two decades later with the ground-breaking ideology of the Bauhaus in Germany and the modernist movement (Droste, 2006; Meggs, 2006). As always, editorials were available in newspapers, but the longer, more in-depth feature articles of the magazines provided a new opportunity for readers to engage with topics of substantive interest and impact (Tebbel & Zuckerman, 1991).

Several of these publications were similar in size and format to books. Their size was in the range of 5.5" or 6" wide by 8.5" or 9" tall, with text set as a single block. The typography was deliberate; the text size, leading, and line length was comfortable for reading. Ornament was restrained or nonexistent. The design of these publications showed discipline: typography, page margins, and columns were consistent within a publication; a grid was used and alignments were considered (see Figure 12).

Covers began to be thought of differently in the late 19th century; publishers began to change the covers with every issue, "a final contribution to the making of the modern magazine" (Tebbel & Zuckerman, 1991, pg. 71). Taken as a whole, the magazines of the late 19th century were "for the most part handsome publications, rich in heavy paper, fine

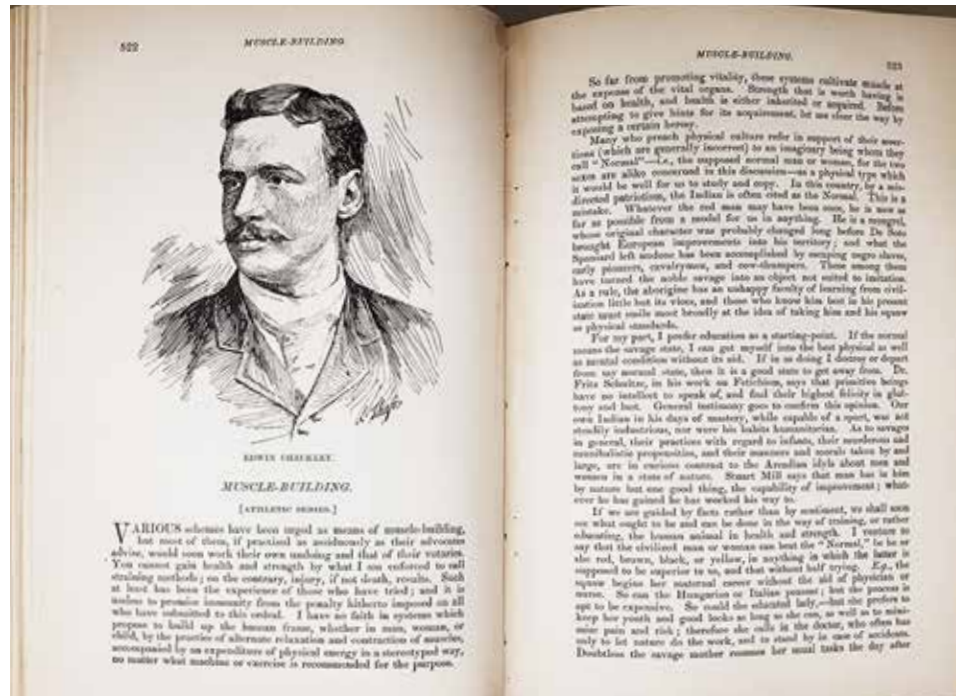


Figure 11. Lippincott's Monthly Magazine, 1892.

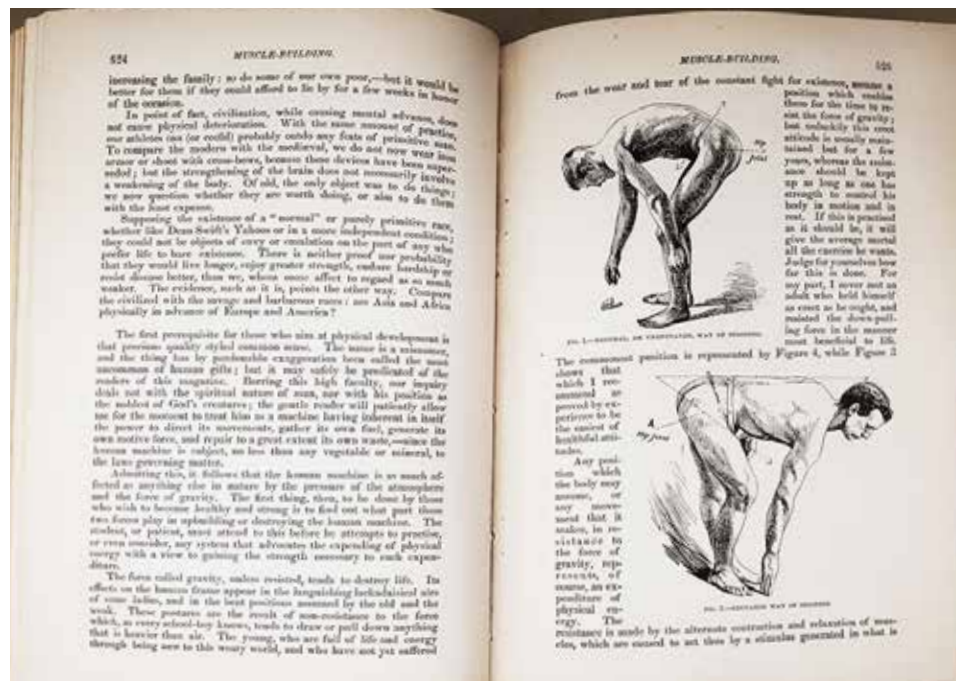


Figure 12. Lippincott's Monthly Magazine, 1892.

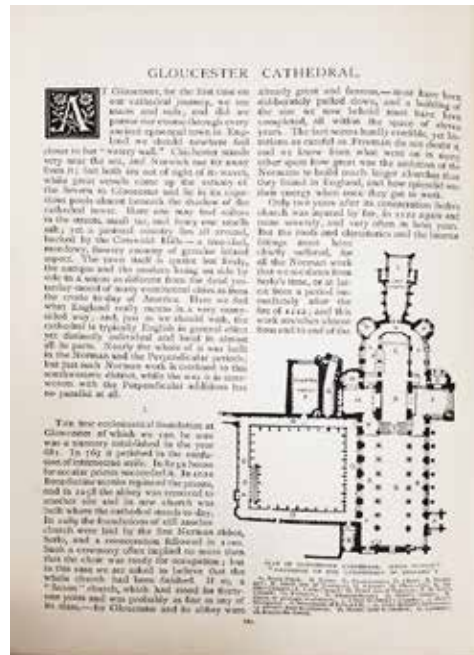


Figure 13. *Century Magazine*. 1892.

press work and tasteful typography, well edited. . . They are pretty generally successful” (Tebbel and Zuckerman, 1991, pg. 82).

Engravings, illustrations, and photographs were used to add interest and information. The images, text, and content show sensitivity to scale and relationship. In some cases, the images were incorporated within the text with the type “wrapping” the image (see Figures 12 and 13). The new halftone process used to print photographs was more cost-effective, which meant even more photos began to appear in magazines.

The half-tone plate had first appeared in the *Century* in 1884 and followed in the other quality magazines. By the early 1890s, the half-tone was firmly established in the industry. Almost a third of the pictures in *Century* were half-tones in 1893. (Tebbel & Zuckerman, 1991, pg. 75)

Most of the smaller-size, more elite and literary periodicals, including *Century* and *Lippincott's*, relied on higher subscription rates. They did not include advertisements until closer to the turn of the century. By then, these joined the others in including advertisements, but restricted them to the back of the publication or the inside of the back cover.



Figure 14. Advertisements in *Puck* magazine, 1892.

Advertisement content and design vary somewhat depending on the focus of the publication. However, in many cases, similar advertisements can be seen in multiple publications, demonstrating the understanding by the advertisers and manufacturers of a consistent brand identity, messaging, and voice. This was accomplished even while each magazine utilized different designers.

In other publications, like *Puck*, an illustrated satirical magazine, commentary is contained within its images rather than text (see Figure 14). It had a slightly larger trim size (9" x 12") than some of the others and had a 4-color cover (see Figure 15). It grew to include color on the interior pages as well. In 1900, *Puck* ran an editorial cartoon (see Figure 16) that reflected society's concern and popular understanding of germ theory, risk of disease, and ways to reduce exposure; it satirized that long skirts stirred up dreaded tuberculosis germs not long before dress lengths began to shorten (Mullin, 2016).



Figure 15. Cover of *Puck* magazine, 1892. This magazine touted a full-color cover since the 1880s.



Figure 16. *Puck* magazine cartoon, 1900.

Magazines were published in the United States in the 1700s before the founding of the country, “although books and newspapers are older still, they do not surpass periodicals in their influence on life in this country” (Tebbel & Zuckerman, 1991, pg. v). In a small survey of 19th-century publications, it is evident

how magazines have reflected and moulded [*sic*] American tastes, habits, manners, interests, and beliefs; how they have shaped opinion . . . have crusaded effectively for social and political reforms; [and] how magazine advertising, as well as magazine editorial content, has affected the American home and standard of living (Wood, 1949, pg. v).

Ladies Home Journal (LHJ). The *Ladies Home Journal (LHJ)* of 1889–1899 was a low-cost, monthly magazine of wide-ranging topics that enjoyed a large and varied readership. A prime example of communication design in popular magazines in 19th-century United States, the *LHJ*, was established in 1883 (Tassin, 1916; Wood, 1949). *Ladies*



Figure 17. “Bright Things for Boys” regular feature. *Ladies' Home Journal*, 1891.

Home Journal, despite its name, was not just for the “lady of the house.” *LHJ* supported trending editorial content such as gender issues, health, employment, leisure, education, and travel (Damon-Moore, 1994). It also considered the interests of everyone in the home—male, female, and children (see Figure 17).

The communication design of the publication played a major role in educating and encouraging its readers to engage with new inventions in 4 major ways: 1) the design of the publication itself, 2) the editorial content/articles, 3) the advertisements, both their design and content, and 4) by stimulating feedback.

Design. The magazine had an inviting design—without that, people would not have picked it up to read (see Figure 18). The magazine garnered a broad swath of readers, becoming the first U.S. magazine to achieve one million in circulation at the turn of the 19th century (Bok, 1922; Krabbendam, 2001; Tebbel & Zuckerman, 1991; Sloan, 2005). The magazine distinguished itself from others with its oversized tabloid trim size, which attracted subscribers from across the country. The publication grew from 32 to 48 pages by the 1890s.

The design made the content easy to access—it highlighted regular features and different subject areas by putting them in dedicated sections. It had clear hierarchy of headings and text (see Figure 19). Different from the smaller publications, *LHJ* used a multi-column



Figure 18. Covers showing creative use of images and type on the left in 1893, and right, the introduction of color printing by 1896, *Ladies' Home Journal*.



Figure 19. Clear headings, margins, and typographic hierarchy. *Ladies' Home Journal*, 1889-1895.

grid. It utilized the grid dynamically to make the pages attractive and engaging to the reader. The designers were creative with their layouts, even wrapping text around images (see Figure 20).



Figure 20. Dynamic layout, asymmetrical balance, interesting imagery, text wrapping on the “Children’s Page.” *Ladies’ Home Journal*, 1889.

As with many magazines of the time, *LHJ* incorporated many images of different types, (see Figure 21) including photographs as soon as innovations in printing processes made that feasible by the 1890s (Daly, 2012; Jury, 2012). The intention of the art program for the magazine, according to Wood, was “decidedly modern;” the value and quality of the images closely matched the importance of the editorial content (Wood, 1949, pg. 112).

Images of different types supported nearly every feature and article. In some cases, the photographs, with their captions, created a photo essay. It is evident that the designers thought of the magazine as a cohesive whole and as two-page spreads rather than simply a series of individual pages (see Figures 22 and 23).



Figure 21. Example of the use of a variety types of imagery on the front page to attract readers. *Ladies' Home Journal*, 1893.

Editorial Content. While the design of the magazine embodied innovation, the editorial content of the magazine communicated new ideas, social changes, and new products. For example, articles explained how to use the novel technology of the consumer cameras that were coming out. The text described what they could be used for—even how to help children learn to take photos. The editorial content talked about women and employment, travel, money, independence, and education—all trending interests of the time. Frequently, articles explained how to apply the latest research in science and health to daily life in the home, such as disinfecting to prevent illness (see Figure 24).

Advertisements. Together with the articles, the advertisements educated readers about new ideas and new ways of doing things. The advertisements themselves were attractive and easy to understand—headings were clear, images were interesting. The designers used type, image, and white space to create hierarchy and direct the reader's attention (see Figure 25).

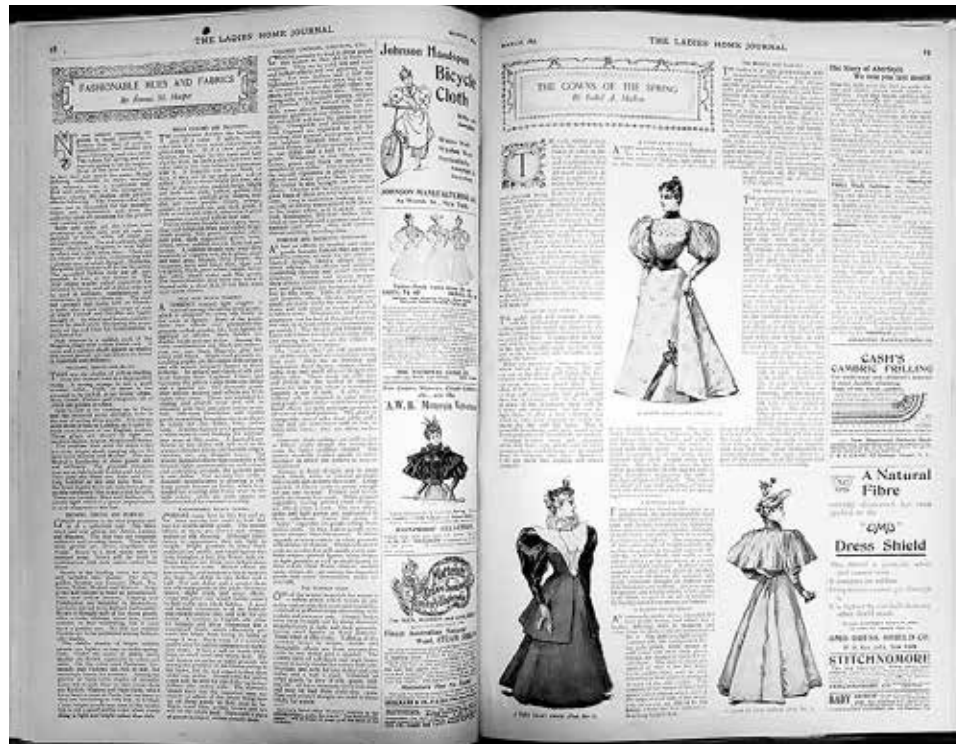


Figure 22. Double-page spread of related topics of fashion articles and imagery. *Ladies' Home Journal*, 1895.

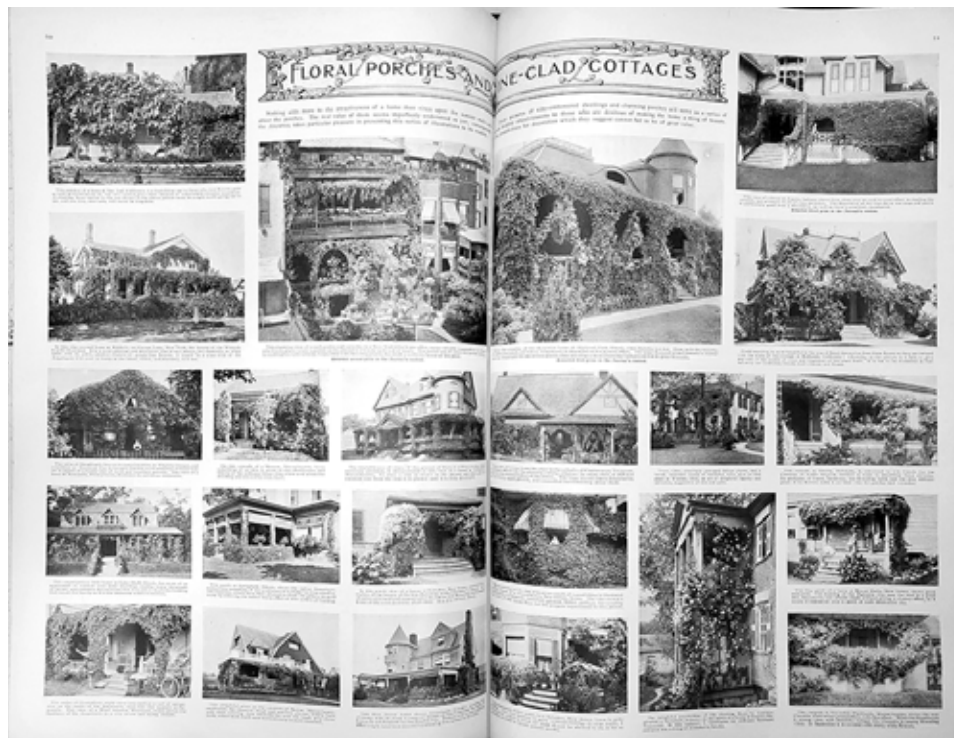


Figure 23. Double-page spread showing extensive use of photographs and use of grid and alignments. *Ladies' Home Journal*, 1899.



Figure 24. Articles educated readers on how to apply the latest scientific research at home. *Ladies Home Journal*, 1889.

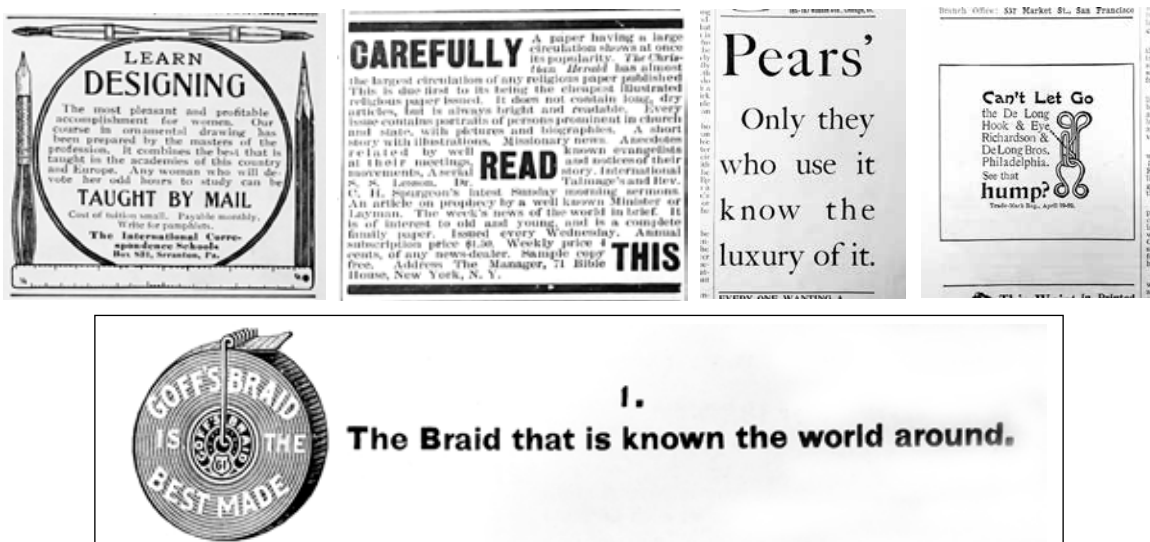


Figure 25. Advertisements showing the use of type, hierarchy, and white space to direct readers' attention. *Ladies' Home Journal*, 1889–1899.

As leading 19th-century ad-man J. Walter Thompson believed,

ads should include a “terse” statement of facts, “so cleverly displayed and illustrated as to be quickly noticed and held in the memory”; an ad that is “neat, attractive, bold, . . . fixes the eye, commands attention” (Ohmann, 1996, pg. 180).

The advertisements also contributed to the overall visual appeal of the publication.

Beyond clear headings and interesting images, many of the advertisements used narrative storytelling, as the industry does today, to impart the message (see Figure 26). Ohmann

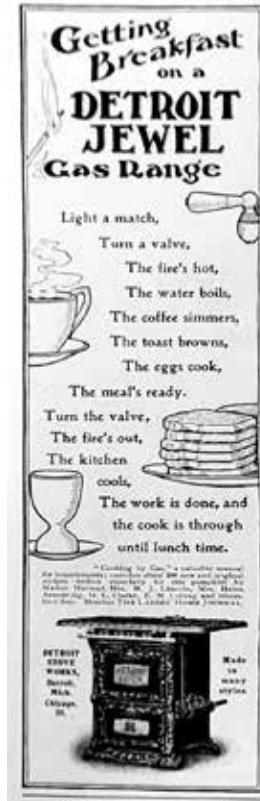


Figure 26. An example of narrative storytelling and creative intertwining of type and imagery in gas range advertisement. *Ladies' Home Journal*, 1890s.



Figure 27. "Simplicity, Economy and Safety," Nestlé's Food advertisement includes narrative storytelling that reflects concerns of the day. *Ladies' Home Journal*, 1890s.

relays advice from J. Walter Thompson that is still effective today: "'Always keep in each and every Ad. [sic], no matter what the size may be, one leading Idea, Trademark or Design,' wrote Thompson in 1895; but also 'Tell your story over and over, with all its variations'" (1996, pg. 193)

Telling the story helped explain the value of new technologies such as a refrigerator, stove, or prepackaged foods. Advertisements supported new cultural ideas like higher education, jobs for women, and making products and opportunities accessible to all (Ohmann, 1996). They often reinforced concerns of the day, like in the Nestlé's ad: simplicity, economy, and safety (see Figure 27).

Besides contributing to the visual nature of the page, *LHJ* advertisements enhanced interaction with readers. Since the subscribers to the Philadelphia-based *LHJ* were



Figure 28. Title page of Sears direct mail catalog, 1897 (Israel). Product and store catalogs helped diffuse new items across the country.

scattered across the country and the advertisers were nearly as broadly dispersed, ads indicated how or where a reader might make a purchase. Direct mail and mail order were relatively new processes; the store or product catalogs were another way that CD helped diffuse new technologies (see Figure 28). Many ads informed readers that a merchant or manufacturer could provide an explanatory booklet, a user manual *per se* (see Figure 29), These were created “by the journal’s advertising departments and fueled by data collected through [the newly emerging field of] market research” (Tebbel & Zuckerman, 1991, pg. 145). These would have served to assuage purchaser concerns about bringing a new

Armour's
Extract of BEEF.

The best and most economical "Stock" for Soups, Etc.
One pound equals forty-five pounds of prime lean Beef.
Send to us for our book of receipts, showing use of **ARMOUR'S EXTRACT** in Soups and Sauces.
ARMOUR & CO., Chicago.

Send to us for our book of receipts, showing use of **ARMOUR'S EXTRACT** in Soups and Sauces.

FREE! Latest handsomely illustrated catalogue of every requisite for photography sent **FREE** on request.
E. & H. T. ANTHONY & Co.
591 Broadway, New York City

Figure 29. Examples of offers of free catalogs for extra information about how to use a product. These helped readers become more comfortable with something new. *Ladies' Home Journal*, 1890s.

product or service into their homes. Some of the booklets suggested creative uses of the products to further entice users to engage with the novelty or new way of doing things, “even as manufacturers stopped selling their goods by mail” (Morley, 2019; Ohmann, 1996, pg. 186).

Feedback. A highly active dialogue developed among the magazine’s readership (Krabbendam, 2001; Bok, 1922). *LHJ* readers were encouraged to submit to the publication about a broad range of topics (Bok, 1922; Tebbel & Zuckerman, 1991). The answers to reader requests, suggestions, and inquiries were a robust and regular feature of the publication (see Figure 30). The strong encouragement by the editors and the extensive participation by readers differed from typical “letters to the editor” in other periodicals. Readers could write in about all types of topics—to applaud a successful woman-owned business, to ask questions of an editor, or to comment about the magazine itself or a new product. The active interchange between *LHJ* and its readers fueled user involvement with communication design and its content. The magazine provided a venue for interactions which created a network of support that helped normalize new changes in society and new products in the home.

The attractive presentation of information about new ideas and inventions, in popular magazines such as *LHJ*, helped readers assimilate innovations into daily life. It also

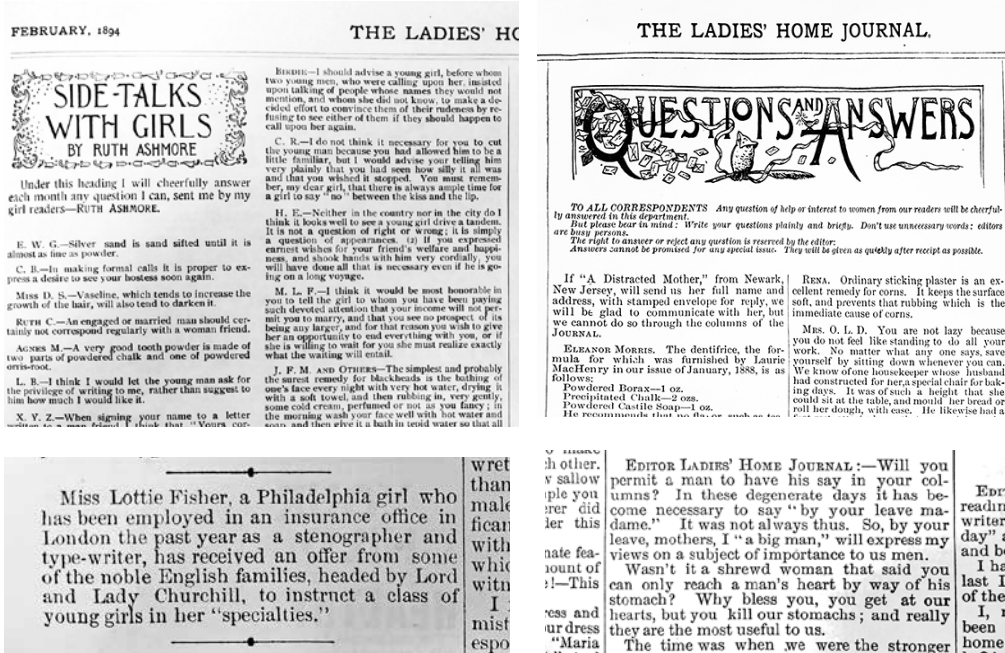


Figure 30. Interaction between editors and readers helped create a network of support. Reader engagement was a high priority for the *Ladies' Home Journal* since its inception. These examples are from the 1890s.

provided a forum for user feedback and interchange among readers, editors, and advertisers. These characteristics created a repeating cycle of engagement and integration that propelled consumer demand for updates to products and services.

21st-Century.

Background Review. While some of the 19th-century publications still exist in the 21st century, communication design extends beyond print magazines. It powers websites, apps, and social media platforms. Even more visual and far-reaching, the current-day media has expanded the level of public engagement with design, innovation, and media that was first evident in the 19th century (Davis, 2018). Digital media, like its print counterpart, still utilizes type and imagery, hierarchy, balance, and white space to direct viewer attention; editorial content educates and encourages (see Figure 31). Additionally, sound and motion are increasingly used to engage readers.

Integrated Systems. The nearly incomprehensible quantity and reach of digital media create an expanded platform for widespread public interaction with design and

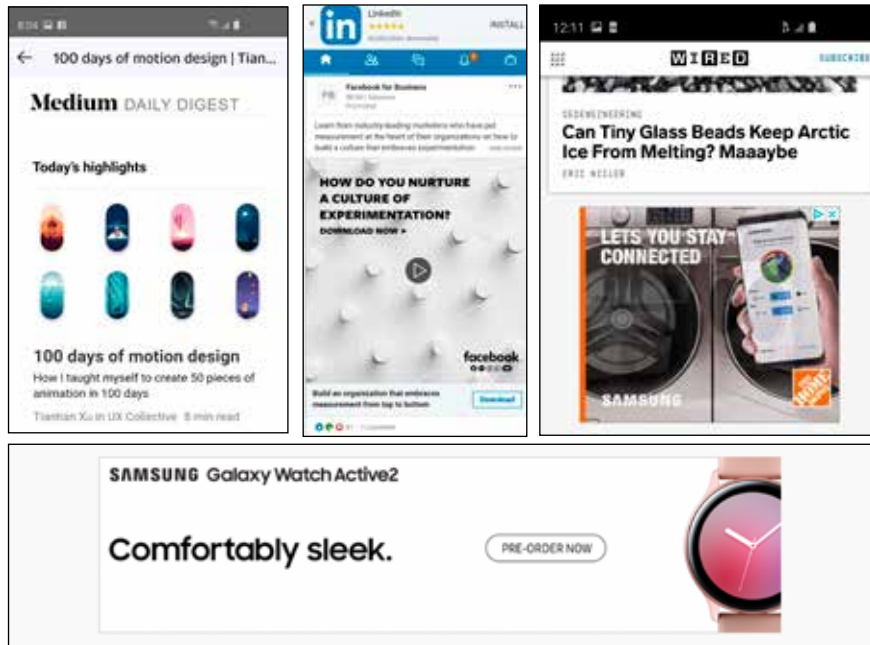


Figure 31. Media uses design, imagery, and message to keep readers aware of changes in design and innovation through articles and advertisements. *Medium* Daily Digest, *Wired* magazine, LinkedIn, and Samsung web ad, 2019.

innovation. Similar to the editors of *LHH*, current-day editors and designers also request input from users; businesses respond to feedback. Current media invites the general user to participate in dialogue with others in real-time and around the globe. To facilitate interaction, business media includes easily accessible links to their social media accounts (see Figure 32). Active engagement and interchange can be a large part of business social media plans and those of individuals. These media posts employ design, branding, imagery, and message to entice readers to interact.

The reach of popular magazines in the United States (see Figure 33) has grown to immense quantities despite the proliferation of online media (Watson, 2019b). Within the past 5 years, readership of magazines increased to an estimated 216 million adults; the number of readers of digital magazines saw a nearly five-fold increase in the period between 2011 and 2015 to 16 million (Watson, 2019b). Several popular magazines from the 19th century continue to be published, such as *Scientific American*, *Architectural Record*, *Good Housekeeping*, *Atlantic Monthly*, and others (see Figure 34). *Ladies Home*

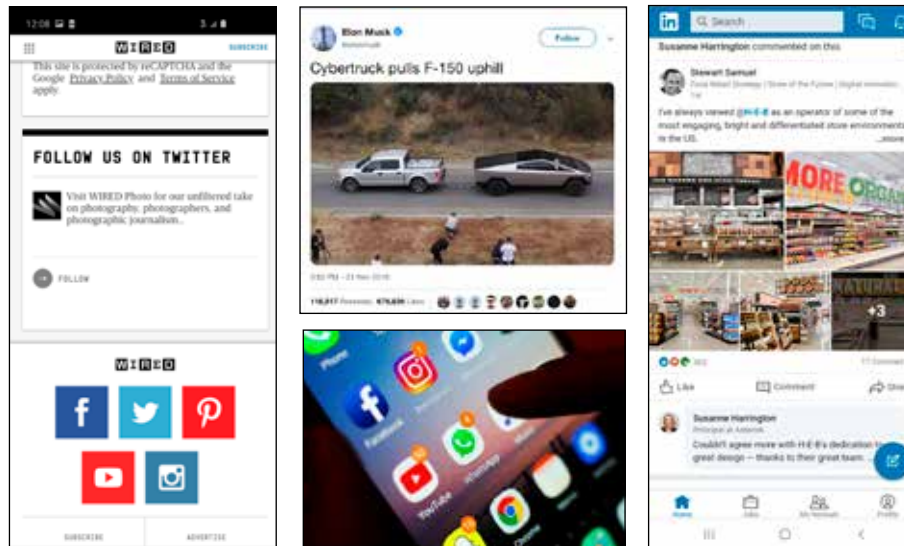
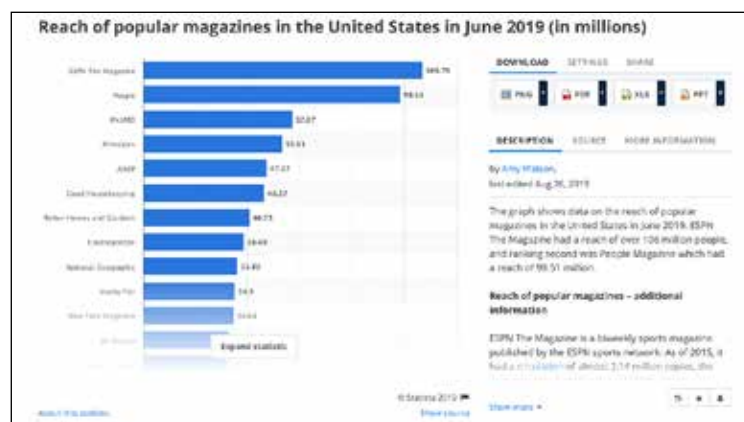


Figure 32. Even more than the interaction cultivated by LHJ editors, feedback is encouraged in current-day digital media. *Wired* magazine, LinkedIn, @Elon Musk, 2019.



Journal lasted into the 21st century; it changed from monthly to quarterly distribution in 2014, then quietly ceased publication in 2017 (Becky King, personal communication, October 17, 2019).

Print magazines continue to launch—nearly 200 in the United States in 2018 (Watson, 2019a). Special interest magazines proliferated in the 19th century, and are the fastest-growing segment in the 21st century (Watson, 2019a). The focus on narrow, special interest content means no one title today contains the same array of feature sections as did the *Ladies' Home Journal* of the 19th century. Separate titles address the different areas once contained within the *LHJ*: literature, fashion, international personalities, interior design, gardening, needlework and sewing, cooking, health, features about and for children, features for men, household finance, etc. New magazines have been launched in print, digital, or both, over the past 100-plus years, yet they make up only a part of a media company's integrated, multi-media portfolio of print, web, and social combined (see Figure 35).

Legacy magazine publishers creatively utilize the benefits of digital channels to support print editions; advertising revenue continues to support print (Braverman, 2018). Even while brands choose to spend on print campaigns (see Figure 36), advertising expenditures also fuel online media outlets (Braverman, 2018).



Figure 35. Diagram of *Us Weekly* multi-media portfolio.

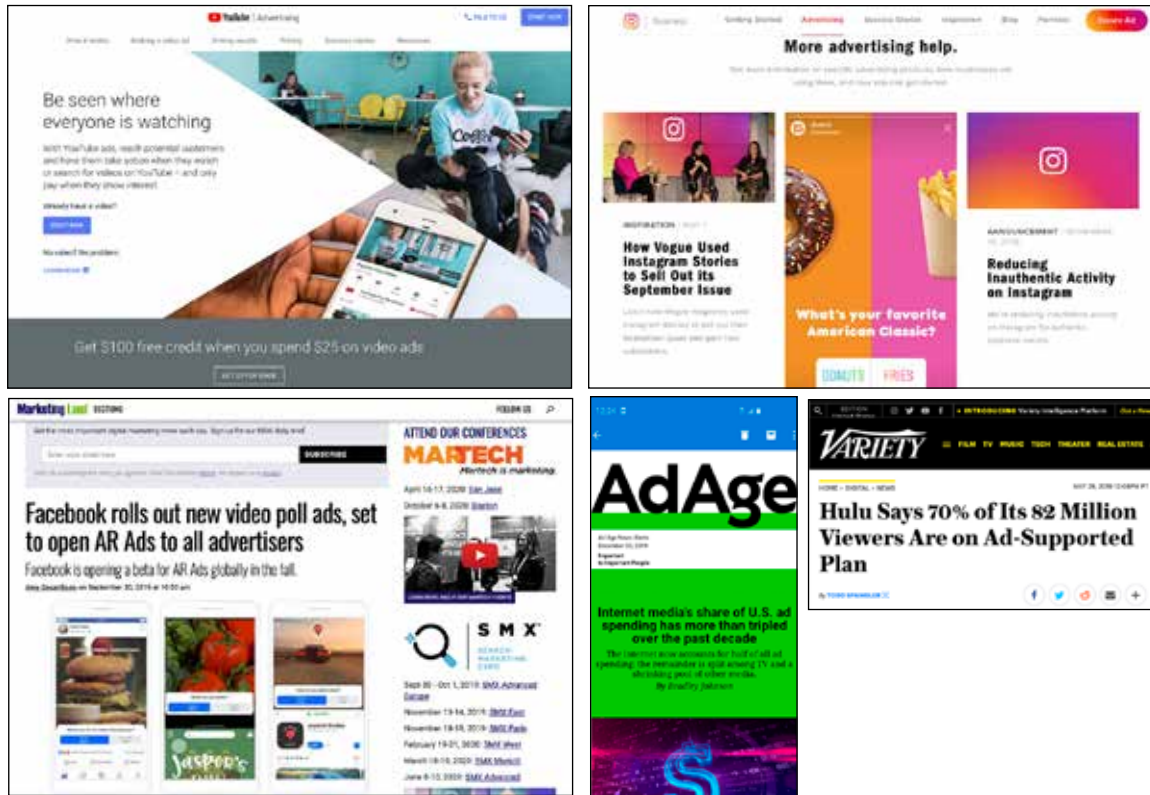


Figure 36. Digital media allows users to curate their experiences. It also allows content providers and advertisers to target more strategically. Hulu, YouTube, Instagram, *AdAge*, Facebook.

Due to the vast array of media options and versatile technology, large portions of the population curate their own selections of audio and video media in place of the linear broadcast media of the 20th and early 21st centuries. With the increased usage of algorithms in online communications, viewers are now exposed to highly targeted content in all they view, including advertisements.

Despite the dramatic developments in 21st-century media, design, type, imagery (still or moving), together with a message, continue to attract, educate, and engage. These elements work together across platforms to create an interactive exchange of information and feedback.

IV. RESULTS: EVIDENCE OF INFLUENCE

Communication design of popular magazines of the 19th century engaged readers with new ideas and inventions through the skillful use of design, imagery, and message. The medium provided a network of support which helped readers integrate innovations into the home. This assimilation into daily life created an ongoing cycle of engagement, adoption, demand, and responsive innovation; starting the cycle again. The following two examples in the 19th century, and their counterparts in the 21st, offer evidence supporting the influence of the communication design of popular media on the design cycle of innovation that continues today.

Photography and Camera

19th Century. Much like all innovations, the invention of photography was one that came about from several different directions synchronously (Winston, 1998). Photography has a commonly agreed upon start date of 1839, but “like most inventions can only be arbitrarily dated” (Leonardi & Natale, 2018, pg. 2). Along with the telegraph, photography was considered one of the “protagonists of the technological revolution of the nineteenth century” (Leonardi & Natale, 2018, pg. 36). The original equipment and chemicals used by early adopters were large, unwieldy and expensive. In 1877, amateur photographer George Eastman

wearied, however, of having to lug about cumbersome paraphernalia: glass plates, a camera the size of a soap box, a heavy tripod, several lenses, and, since the pictures had to be developed on the spot, a darkroom tent of chemicals. The equipment even for a single day’s outing commonly weighed more than a hundred pounds. (Schlereth, 1991, pg. 198)

The cumbersome setup was satirized in a cartoon in the British magazine *Punch* in 1862 (see Figure 37), characterizing the photographer as a “curious animal” called the “Elephants Photographicus” (Leonardi, & Natale, 2018, pgs. 21–22). However, these early photographers were willing to haul the equipment to distant or dangerous places. In many



FRONT AND BACK VIEW OF A VERY CURIOUS ANIMAL THAT WAS SEEN GOING ABOUT LOOSE THE OTHER DAY. IT HAS BEEN NAMED BY DR. GUNTHER "ELEPHANS PHOTOGRAPHICUS."

Figure 37. "Elephans Photographicus" cartoon, *Punch* magazine, 1862. (Leonardi & Natale, 2018)

cases they were commissioned to do so; photographers were hired to document battlefields of the Civil War and new territories in the west (Meggs, 2006).

Photographic imagery captured imaginations and altered the way images were reproduced in magazines.

Before it was possible to print photographs, photography was used as a research tool in developing wood-engraved illustrations. The documentary reality of photography helped illustrators capture current events. . . . it [helped] people understand their history was formed with the timeless immediacy of photography. (Meggs, pg. 147)

Popular magazines, including the *Ladies' Home Journal*, used many different types of illustration and began using photographic illustrations as soon as the innovations in pre-press processes made printing of photos feasible. The visual allure of the printed photographs further promoted the popularity of the innovative technology of the camera.

By the late 1880s, Eastman had invented a compact, box camera, the Kodak #1, marketed to the amateur masses (Fineman, 2004). "Included in the price of a Kodak was a roll of film, together with the processing of its hundred pictures" (Schlereth, 1991, pg. 198). Other brands of small amateur cameras also became available. These small, inexpensive

portable cameras overcame previous barriers of size and complexity, which made it possible for the general public to create photos for themselves.

In service and response to the growing interest in amateur photography, articles began appearing in the *Ladies' Home Journal* in the 1880s. The articles educated readers about the basics of photography, starting with what one might want to photograph. Other articles explained how to help a child learn to use a camera and what equipment might be needed (see Figure 38). The comforting tone encouraged the reader that photography was an easy, feasible process that would not be very expensive (see Figure 39). One *LHJ* article of the time explains, “advertisements and circulars were breaking down the very walls of the ‘dark room’” (*LHJ*, 1889). Another explains the process step by step: “with your right hand remove the cap from the lens tube” (*LHJ*, 1889). The frequency of published articles like these reinforced each other and offered the reader support.

The *Ladies' Home Journal*, like other popular magazines, printed many advertisements for consumer cameras.



Figure 38. The article explains that photography is accessible, what supplies and equipment would be needed, and what approximate costs one might expect. *Ladies' Home Journal*, June, 1889.



Figure 39. Article explaining step-by-step how to photograph. *Ladies' Home Journal*, July, 1889.



Take the Baby's Picture

You can obtain splendid results in either landscape or portrait work with

The Premo Camera

it gives the finest details, and is inexpensive, compact and simple in construction.

The Women Like It because it is so light and easy to handle, the weight being only two pounds. It has the best Lens and our new Silent Shutter.

SEND FOR CATALOGUE

ROCHESTER OPTICAL COMPANY
21 South Water Street, ROCHESTER, N. Y.

Figure 40. "Take the Baby's Picture," The Premo Camera advertisement showing how the camera can be incorporated into daily life, *Ladies' Home Journal*, 1889.

Try Before You Buy

We want to send you a New Pocket Kozy Camera ON TEN DAYS' TRIAL. That's the way we're making Kozy cameras known every day. These readers are already in the hands of delighted purchasers. Doing perfect work — as we said they would. KOZY'S PERFORMING IS MAKING KOZY FAMOUS. Our factory doubled its capacity in creating machine cameras. Unprecedented sales and the universal satisfaction of our patrons prove the wisdom of our seemingly reckless offer. The Kozy tells its own story best — that's why we want you to TRY IT, and for this reason our introductory distribution will be continued until JULY FIRST. We have thousands more waiting to hear FROM THEIR OWN EXPERIENCE, the marvellous ability of the

New Pocket Kozy Camera

THE SMALLEST CAMERA MADE THAT TAKES LARGE PICTURES ON A BAYLEIGH FILM

BE SURE THE ONE THAT YOU CAN TRY BEFORE YOU BUY

We believe our New Pocket Kozy is the best pocket camera in existence, and that it will give absolute satisfaction in every case — therefore, we are entirely willing to send you one

ON TEN DAYS' TRIAL

Test it thoroughly before you try. PROVE OUR CLAIMS BY YOUR OWN EXPERIENCE. You will find that the Kozy is the mostest, strongest, lightest camera in the market — 7½ inches thick, weighs only 2 lbs., takes 12 large pictures (5½ x 3½ on one bayleight film) — can be loaded and unloaded in bright sunlight — no dark room, no lens cap or plate holder; is mechanically simple and perfect, and yet out of order; makes snap-shots or time exposures with equal facility; a child can operate it. Take TEN DAYS to prove these facts. Then, you can make

EASY MONTHLY PAYMENTS

to balance your account, or save a liberal percentage by paying cash in full. If the Kozy IS NOT what you need, send it back. We do not want your money unless you want the Kozy.

JUST THE THING for Bicyclists, Tourists, Camerists, and all Camerists who need to economize space, time, money and temper.

This is Our Liberal Offer

GOOD UNTIL JULY 1—Read Carefully

Send us your name and address, with \$1.00 as a deposit, enclosing this magazine, and stating our capital and references. The Kozy will be forwarded, CHARGES PREPAID. For ten days after its receipt you are to test the camera to your satisfaction. If at the expiration of that time, you decide to keep it, you can send \$9.00 more, making a total payment of \$10.00 in full; or, you can send us \$2.00, and thereafter \$2.00 a month for 8 months, making a total payment of \$18.00. UNDERSTAND. If you are not entirely satisfied after ten days' trial, you may return the camera to us, without penalty, and we will immediately refund your deposit of \$1.00.

ASK YOUR DEALER FOR THE KOZY. If he cannot supply you, write us for names of dealers and full particulars, FREE on application. We refer to the Mechanics' National Bank, of Boston, as to our responsibility. Address, to-day,

KOZY CAMERA CO.



Figure 41. In addition to relating the new camera to a familiar item "like a book," the advertisement offers for the reader to "prove our claims by your own experience" with a trial period. This type of offer encourages the reader to temporarily engage directly with the new technology, in order to help assuage any fear or hesitation.

To promote the snapshot camera as "a universal hobby to make mementos for the future," Eastman advertised not only in the photographic press, but especially in the mass-circulation magazines (Schlereth, pg. 198).

The advertisements helped the reader see how the new technology might fit within their daily life by showing the camera in use. For example, an advertisement showed an image of a mother photographing her child in a high chair (see Figure 40). Others demonstrated that the camera was small enough to fit in a pocket, which reinforced the innovative idea that cameras could easily go anywhere (see Figure 41). Many camera ads also included information for ordering a supplementary catalog (see Figure 42).

The consumer cameras were used to create new kinds of images of life that "revealed society's lighter moments" (Schlereth, 1991, pg. 199). As the cameras became more commonplace, it is conceivable a demand emerged for a method of displaying or

The KOMBI CAMERA
 Size, 1 3/8 x 2 in.
 Weight, 4 oz. Price **\$3.50**



**In Every Hand
 In Every Land**
 Photographs Made for a Cent Each
 Films for 25 Exposures 20 Cents

Any Boy or Girl can use it. Carry in pocket. Takes 25 perfect pictures in one loading, snap shot or time exposure. All metal, silver bronze finish. Every instrument guaranteed. Indestructible. Ask your dealer about it or send for sample photographs and book, "All About the Kombi," free.

ALFRED C. KEMPER, Mfr., 132-134 Lake St., Chicago
 Branches: London, Berlin

A record of half a century guarantees absolute satisfaction to our patrons.

Any make of **CAMERA**
 and everything needed in
PHOTOGRAPHY
 can be obtained from us at
 the lowest possible price.

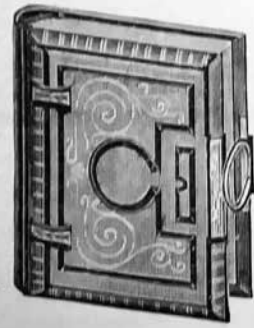
FREE! Latest handsomely illustrated catalogue of every requisite for photography sent **FREE** on request.

E. & H. T. ANTHONY & Co.
 591 Broadway, New York City

Figure 42. Two camera advertisements. *Ladies' Home Journal*, 1889. The top ad offers for the reader to "ask the dealer about it or send for sample photographs and book." The lower ad also offers a free catalog. These types of advertisements helped the reader feel more comfortable with the idea of engaging with unfamiliar technology.

PHOTOGRAPH ALBUM.
 Given for 10 Subscribers at 50 cts. Each.

This Album is bound in fine leather, has beveled edges, and is ornamented in black and gold, as seen in the cut.



It contains places for 40 pictures; part of the openings are oval and part square. The pages are lined with gold. The book has gilded edges and nickel-clasp. Size 6 1/4 x 5 1/2 inches.

Figure 43. Advertisement for photograph album. *Ladies' Home Journal*, 1890s.



Figure 44. A *Ladies' Home Journal* regular feature in the late 1890s that recognized women photographers, providing feedback on how photography was incorporated into lives, and encouraging more women to engage with the technology.

storing prints. In response, advertisements began appearing that offered picture frames and photo albums to provide a place to collect, organize, and display the growing abundance of images (see Figure 43). "Many family snapshot albums, assembled from the 1890s to 1920, share perennial themes. No two family albums are the same and yet all are alike" (Schlereth, 1991, pg. 199).

As photography and the camera gained momentum, the *Ladies' Home Journal* began running a regular feature, "The Foremost Women Photographers in America," by the late 1890s (see Figure 44). This type of coverage was a form of feedback indicating ways that

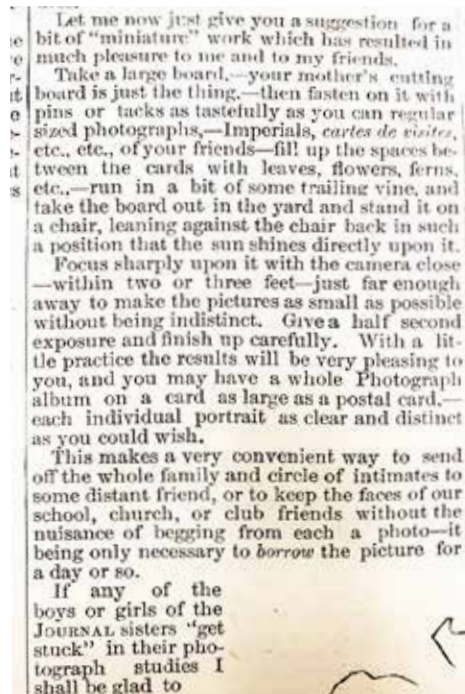


Figure 45. Part of a reader letter describes a way to create a composite image of multiple exposures the size of a postcard for a gift. The writer also offers support, "If any of the boys or girls of the *Journal* sisters 'get stuck' in their photograph studies I shall be glad to . . ." *Ladies' Home Journal*, 1890s.

photography had been incorporated into lives. The recognition likely spurred more women to engage with photography and the camera.

By the 1890s, *LHJ* had developed a robust culture of readers corresponding with the editors through the publication and offering suggestions to other readers. This forum provided opportunities for readers to exchange feedback as well as offer a network of support. Readers wrote in with information and suggestions about their experiences with cameras and photography. Letters to the editors and articles both offered tips or ways to include photography in the homes (see Figure 45).

In the 19th century, communication design of popular magazines helped diffuse the innovative portable consumer camera into readers' daily lives within a short period after their introduction. Attractive design and informative content encouraged readers to engage with the new technology.

21st Century. With the improvements in size and precision, consumer camera use has grown dramatically since the 1890s. The growth of popular camera technology has created many, many new kinds of innovations over the past 100-plus years that go beyond the scope of this research. Communication design of the 21st century, however, continues to engage potential users of new camera technologies. The digital camera emerged along with other digital technology of the late 1900s. By the turn of the 21st century, manufacturers provided digital consumer cameras at reasonable costs, including digital video cameras in the early 2000s. At about the same time, cameras began to be included in cell phones. “By the end of 2003, camera phones were really taking off in the U.S. and over 80 million had already been sold worldwide” (Hill, 2013). The market continued to grow and different versions of cameras were developed, including “stereographic 3D. As it turned out, there was no real demand” (Hill, 2013). In 2007, the smartphone era began with the launch of Apple’s first iPhone. “The race to improve the cameras in phones stalled a bit as smartphones took off” (Hill, 2013). Cameras became a regular feature of smartphones and have nearly become ubiquitous. By 2015, “fully 92% of adults owned a cell phone, including the 67% who own a smartphone” (Rainie, 2015). Users are kept abreast of ongoing innovations in camera and phone technologies through type, image, and message (see Figure 46). In the same way, cautions or advice about the use of the new cameras and media outlets are communicated (see Figure 47).

The ongoing growth of the consumer camera field has also created demands, out of which have grown a number of new accessories and uses for small, high-fidelity cameras. One of these is the “go-pro” camera accessory used for taking self-portraits (“selfies”) or used by the outdoor adventurer. Demand has also led to the development of more safety-minded uses of cameras such as “nanny cams” and camera doorbells. Communication design conveys information about the availability and viability of these new items, helping diffuse them to potential users (see Figure 48).

Cameras and photography have become such a pervasive part of daily life that some

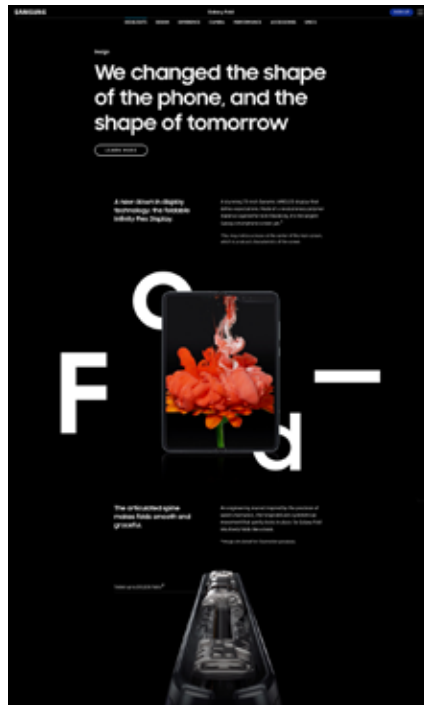


Figure 46. Samsung advertisement for innovative Fold smartphone and camera, 2019.



Figure 47. Media provides articles of advice and encouragement as well as a forum for comments, feedback, and interchange.



Figure 48. Editorials and advertisements continue to communicate new camera technologies and accessories to potential users into the 21st century.



Figure 49. The spread of digital cameras and the growth of digital media together have launched new careers that depend on attracting, educating, and getting feedback from viewer/readers.

social networking outlets, such as Instagram, YouTube, and now TikTok, are devoted to the taking and sharing of images and videos. Through these communication design and support networks, people have embraced the creative and visual nature of these media to launch new kinds of careers using the consumer camera (see Figure 49) for their own media enterprises.

Exercise and Bicycle

19th Century. During the same time period that the camera and photography were gaining momentum, tuberculosis was reaching its peak in the 19th century (Mullin, 2016). Germ theory had been introduced, but the identification of the “bacteria that caused the disease . . . helped germ theory gain more legitimacy” (Mullin, 2016). This newfound understanding of disease prevention extended to all areas, including health, fashion, and leisure (Mullin).

Coincidentally, popular interest in the bicycle was gaining momentum along with the rise of sports. Between 1875 and 1900, following widespread changes in American society, people filled their expanding leisure time with sports and taking care of their health (Boyle, 1962, pg. 54). No sport made a more significant “contribution, social or technical, than the bicycle,” which merited robust endorsements from physicians (Boyle, 1962, pg. 58, 60).

SCARLATINA OR SCARLET FEVER.
The Most Contagious Diseases of Childhood.
Valuable Hints in Nursing and Treatment.

BY DR. T. WALLACE SIMON.

At this season of the year, the prevailing epidemic diseases are, for the adult, those most effecting the nose, throat and air passages, not mentioning all those that might be called—diseases of acquirement—and due mostly to indiscretion, such as Pneumonia, Bronchitis, Pleurisy and the various catarrhal diseases.

We find however, among children, that the epidemic diseases most prevalent, are those effecting the *air passages* either at first, or at some point in the course of the disease. These localized symptoms rising to such prominence as to become the one—*post morbum* (or bill of difficulty) of the whole disease—to be overcome.

Such diseases of childhood, in particular, as Croup, Diphtheria, Catarrhal-Bronchitis and others, where the diseased action finally localizes itself in one part of the system, and there spends its full force.

There are diseases, however, highly epidemic that have no place of ultimate attack, which are essentially epidemic febrile diseases; and among these, SCARLET FEVER is the most prominent, and perhaps the most violently contagious, and therefore very liable to be epidemic.

The laity,—that is, the non-medical public often hear the name "SCARLATINA" used for *Scarlet Fever*. *Scarlatina* is simply the Latin or medical term for Scarlet fever, and does not, as is generally supposed, mean a milder form of the disease.

The principle varieties of the fever are the *simple* and *unifoliant*. The simple form of the fever may run very high in fever and severity, and the *throat symptoms* be particularly severe, when it has been called, the *anginose* variety. The malignant form is a very high and virulent degree of the same poison, which throws its whole force mainly upon the nervous centres, and produces death before the slower processes of the fever have had time to develop and show themselves as symptoms.

The diagnosis between *Scarlatina* and *diphtheria*, the latter being the only disease with which it can readily be confounded, is comparatively easy. In the first place, *Diphtheria* has rarely an eruption; if it has, it comes much later than in *Scarlatina*, and is confined only to the head and neck. Again, in *Diphtheria*, the throat symptoms are mostly confined to the larynx or windpipe and not at first to the tongue, and then the back part of the throat only, as in *Scarlatina*.

In *Diphtheria*, the greatest possible depression of the system, almost to stupor or coma, is one of the first symptoms, whereas in *Scarlatina*, these symptoms only occur, if at all in the later stages or in the malignant form.

It is difficult to make a diagnosis before the eruption appears, but, if a child be exposed to the *Scarlatina* poison, and then in from two to ten days shows symptoms of lassitude, pain, generally most severe in the back, with vomiting or nausea, and great fever, with severe sore throat and the swollen "strawberry-tongue" there can be little doubt that it is affected with *Scarlet fever*.

TREATMENT.

The treatment of a case of *Scarlatina* is of

ANONING THE BODY.

The second measure for quieting this restlessness, is the anointing of the body with some pleasant unguent.

These unguents or ointments serve a three-fold purpose: First, the oily substance lying next the skin, has a very great tendency to cool it, and keep down the temperature; secondly, it makes the movements of the child in bed more easy and less irritable, for, while the skin is shedding its epithelium in scales upon the bed-clothes, every movement of the child, feels to it as if it were moving in a bed of rough sand. The ointment here softens and soothes the raw surface of the skin, and also softens the scales, making them less irritable. Again, and thirdly, the ointment soaks into the scales of skin and makes them heavier and more adherent to the bed-clothes under the child, preventing their becoming very dry and getting into a condition of powder or dust, in which they may be shaken or blown or disseminated about the room and on the clothing of the attendants, and thus become a great and very dangerous source of contagion. The bed-clothing should be changed daily.

(Continued next month.)

Ladies Beware of Imitations:

The Genuine Imported Johann Hoff's Malt Extract is the original Tonic Nutritive; it is unexcelled as a dietetic table beverage for dyspepsia, as a tonic for the weak and debilitated, it is less stimulating than wines, ales or porters, highly nutritious and prescribed by all Physicians throughout the civilized world.

CAUTION—Imitations of this article being sold by unscrupulous dealers, ladies must be careful to ask

LADIES
Who Value a Refined Complexion

MUST USE
POZZONI'S
MEDICATED
COMPLEXION
POWDER.

It imparts a brilliant transparency to the skin. Removes all pimples, freckles and discolorations, and makes the skin delicately soft and beautiful. It contains no lime, white lead or arsenic. In three shades: pink or flesh, white and brunette.

FOR SALE BY
All Druggists and Fancy Goods Dealers Everywhere.
Or mailed on receipt of 25 Cent-stamp. Address
J. A. POZZONI, St. Louis, Mo.

DO YOU VALUE YOUR SIGHT?

Figure 50. Articles educated readers on how to apply the latest health research at home.

The public interest in health, disease, exercise, and bicycles is evident in the design, editorial, and visuals of the *Ladies Home Journal* in the 1890s. Science and health were a fascination of the time because of the advancement of germ theory as a result of fatalities from outbreaks of disease (Mullin, 2016). Magazines provided articles that explained the latest in scientific research about how to disinfect to prevent disease or nurse a person suffering from illness (see Figure 50).

Along the same lines, multiple articles and advertisements encouraged women to participate in sports, to exercise, and to gain strength (see Figure 51). The editorial content explained exercising in the home as a way to enhance health.

In addition to home "gymnasiums," advertisements showed that bicycles were a good way to exercise (see Figure 52). Bikes also made it possible to enjoy some independence or newfound leisure time, both trending interests of the time. Popularity of bicycles boomed in the 1890s in both Europe and the U.S., offering

A *New York Times* article from 1896 gushed that "the bicycle promises a splendid extension of personal power and freedom, scarcely inferior to what wings would give" (Andrews, 2018).

HOME JOURNAL.

GYMNASTIC EXERCISES FOR WOMEN

By ELLEN LE GARDE

LIGHT gymnastics embrace the use of dumb-bells, barbells, Indian-clubs, wands, hoops and exercises without anything whatever in the hands. Marching, deep-breathing movements, posing, stretching and equilibrium exercises, all of which have, in a great measure, grown out of the Delarte system, also come under the general term, light gymnastics.

The beneficial results of all these are many and varied. Hardly any one is too weak for gymnastics. Gentle massage will start the muscles and send the blood into healthy circulation. Then the patient should help herself. One of the advantages of light gymnastics is that the sick and convalescent can make what appear to be trifling efforts, and by them, in time, be restored to active health. If too feeble to be practically able to make but little exertion, try what are known as deep-breathing movements. Lie flat upon the back, take as long and as deep breaths as possible, and while the mouth is closed, slowly throw the arms up in front and then at the sides. Rest for ten minutes. Try again the same inhalation and exhalation of air, the latter being pure and fresh. After awhile, attempt the same, sitting up. These exercises can safely be taken by the sick one every day, several times, and the whole muscular system will be improved, just as if some revivifying tonic had been given, a far better one than any charged with alcohol or some like stimulant.



THE LADIES' HOME JOURNAL

JANUARY, 1894

A GYMNASIUM AT HOME

By Ellen Le Garde

THERE is an old saying that "it is better to pay butcher's than doctor's bills." The fact that is becoming apparent to many women to-day is that the expenses of the gymnasium are easier to meet than the doctor's fees, and can, to a great extent, be made to supersede his services altogether. But not every one is so fortunate as to be within easy walking or riding distance of one, and the query arises, if a gymnasium is not near at hand, what then? Why, have a gymnasium at home, for yourself, your boy and your girl. It will keep the son indoors when he might be tempted away from you, will amuse him, build him up bodily, and...

VIEWED FROM THE CHILDREN'S SIDE

The advantages of gymnasium practice for young children, and its direct bearing on their future, can hardly be reckoned. Strange to say, the most common defect in the physical status of children is a most grievous one, namely, lateral curvature of the spine. The majority of curvature cases occur between the ages of five and fourteen, and need not happen at all if the matter is properly understood and attended to. These tender little bodies will bend and permanently shape, like young plants, in whatever way their growth is directed. If your child is carelessly permitted to assume one position for any lengthened period, you may expect, as a result, a one-sided development. If at birth the muscles of the child are of the same strength on both right and left sides, the shoulders will...

DANGERS OF UNDISCIPLINED EXERCISE

A SECOND physical defect common to children is an over-development of the right side. As will be readily understood, this comes from a too constant use of that part of the body, yet the left side should be exercised quite as much. Some simple exercises might be tried by which the defect may be remedied. One is moving the shoulders up and down. Another, swinging the right arm from the side up. Also thrusting the arm up or bending the head forcibly to the right. There are all sorts of defects in the shape of the shoulders: they may be too round, too stooping or sloping, and as for projecting shoulder-blades, they are invariably *ex evidence* without the formality of a physical examination. For these defects braces are of little use. It is much better for the boy or girl so handicapped to use a chest-weight daily. A few months' regular gymnasium practice will show a remarkable improvement.

To be effective, gymnastics at home should be practiced with regularity and with moderation. Only by regular exercise can the results looked for be reached. To get the greatest gain the digestive organs should be as empty as possible, thus exercise just before, not after meals, is the better. If any exercise be followed by pain in the chest or groin, or by a dizziness, it should be taken less violently or discontinued altogether. Weariness of the muscles...

THE LADIES' HOME JOURNAL

OCTOBER, 1890

GYMNASTIC EXERCISES FOR WOMEN.

By ELLEN LE GARDE.

A long ago in 1860, London, N. About wrote, in that satirical way of hers: "This attitude soon is converted just now with a gymnastic fever, which shows itself with great violence in the schools and young societies generally. Dr. Lewis has translated it with the disease, and it has 'taken daily' for every one has become a pantomimic wind-mill, with all its four sails going as if a wind had set it. The City Fathers approve of it, and the city sons and daughters intend to show their Obedience to such records as these. Alas, the 'Meg of 'Little Women,' and I am among the pioneers."

Much the same interest is shown now, and so great is it and so widespread, that simply of late years it has a "fashionable" feel. If it be fact, it is the most sensible one that has yet arisen, and unlike such fickle fancies, has come to stay and will not be blown aside by any newer thing that arises. What are its parts, its benefits?—the of course there is no cure without some good or bad effect, and no woman would take gymnastic exercise and hourly endure it unless she was sure of some good in the end for the time and effort put forth.

Those who understand and have tested the good results of gymnastic exercise divide the methods and apparatus used to attain the ends reached by light gymnastics are not as tough, not as plainly observed nor as serious, though of equal importance, as the results obtained by heavy gymnastics. Their value and application to daily life will be discussed...

THE BOWING MACHINE.

delicate, weak-limbed woman begins soon to feel the risk position of health, as added to back that at one time she deemed it impossible to acquire. Curvature of the spine is cured; kidneys and lungs have to do more active work to get rid of the waste products; the heart beats more vigorously in order to carry more blood to the sick and most disease, lurking in various parts of the body, is sent to the right about face by the persistent use of the bowing machine.

Another machine, with which the gymnast could not part, is the quarter-circle. Here, too, the chest is expanded, the breathing apparatus deepened. Every one who shapes more or less, as their daily work pulls the shoulders over. To overcome this, the gymnast has the quarter-circle, rearranging the backward position of both head and shoulders. For unconsciously-inherited posture, no better advice could be given than a daily use of the quarter-circle. Lying flat on the machine, with it extended to the amount prescribed by the directions, the pupil extends the arms over the head, pulls the weight down as far as the arms will allow, and repeats this so many times as is most beneficial.

Figure 51. Articles encouraged women to consider the new idea of exercising for health by explaining how and why it would benefit them. *Ladies' Home Journal*, 1890s.

Columbia BICYCLES

Standard of the World

"Bicycling for women means increased health and strength and added pleasure to life."

At a cost that is comparatively trivial wheelwomen have the advantage of a sure and speedy means of getting about and the exhilaration of a most salutary form of exercise in the open air and sunshine. Those who ride

Columbia Chainless BICYCLES

have the additional advantage of a driving mechanism that is operated with the minimum of effort, that is always free from grit, dust and mud, always perfectly lubricated, always in order.

HOME JOURNAL

MAY, 1894

HERE is Health in the Wheel

Firm muscles, good complexion, and cheerful spirits are the result of plenty of out-door exercise and sunshine.

Cycling is the popular sport of the day.

The 1894 Columbias are a realization of the ideal in bicycle construction—a triumph of American skill and enterprise. Constantly advancing in the line of progress, Columbias still maintain their proud position as the standard bicycles of the world—unequaled, unapproached.

POPE MFG. CO., Boston, New York, Chicago, Hartford.

A beautiful illustrated catalogue free at our agencies, or by mail for two-cent stamp.

IMPROVE YOUR GENERAL HEALTH BY RIDING

Highest Honors at World's Columbian Exposition

THE Monarch

Most Elegant Ladies' Wheel in Existence.

FOUR STYLES—LADIES' & GENTS'. BUILT BY MONARCH CYCLE CO. IN CHICAGO.

Send for Catalogue. Agents wanted in open territory.

MONARCH CYCLE CO. CHICAGO, U. S. A.

HOME JOURNAL

MARCH, 1894

I Ride a Victoria!

and consider it the ideal bicycle for ladies' use. Such is the invariable testimony of ladies who try the Victoria.

The majority of bicycles for ladies are heavy and hard to propel. The '94 Victoria is a model of lightness, grace, strength and easy-running qualities—a fit mount for American women.

Victoria Ladies' Bicycle

Queen of Safeties

Bicycling for Women

Physicians recommend bicycling. Dame Fashion says it is "good form." Two new models for women's use in Columbia Bicycles.

Model 42 Columbia has been especially designed for the many ladies who prefer to wear knee-binders rather than cumbersome skirts.

Ladies who ride in Hartford Bicycles at home price—\$80, \$60, \$50.

POPE MFG. CO.

CHICAGO, ILL.

Send for Catalogue. Free at our agencies, or by mail for two-cent stamp.

Write for the new and improved *Victoria* Bicycle. It is the latest model in women's bicycles.

Figure 52. Advertisements encouraging bicycles as a healthful method of exercising. *Ladies Home Journal*, 1890s.

Different types of bicycles had been developed since the earlier part of the 19th century. Feedback about the difficulty and danger of the high-wheeler, “its four-foot-high saddle made it too dangerous for most to ride,” led to revisions in the bicycle frame (Andrews, 2018). By 1884 the “safety” bicycle, designed more like today’s bicycles, made the sport feasible for the masses, growing in popularity to 10 million cyclists by the end of the 1890s (Schlereth, 1991).

With the adoption of the new technology of bicycles, feedback and demands from women arose from the complexities of exercising or riding a bicycle in the clothing of the time. In response to complaints about stiff corsets, silk fabrics that would retain odors, and skirts getting caught in the bike chain, innovations like leggings, bicycle cloth, and substitutes for corsets began to be advertised. Encouraging articles outlined ways to make bicycle skirts and other accessories (see Figure 53).

Communication design of popular magazines in the 19th century helped diffuse the new ideas, technologies, and demands about health, exercise, bicycles, and athletic clothing. Design, imagery, and text encouraged readers; the magazines also provided a forum for feedback that supported change.

A Substitute for a Corset
 Indispensable to ladies of any age or build, for health and beauty of figure. Worn under a corset if desired, or without a corset. Made with skirt and hose supporter attachments. Unexcelled for comfort and coolness, especially for golf and other outdoor exercises.
 When ordering send bust measure.
 Sizes from 30 to 38, . . . \$1.00
 " " 40 " 45, . . . 1.25
 " over 45, . . . 1.50

Glove-Fitting Bicycle Leggings
 \$1.50 JERSEY of finest quality made. Conforms to every movement and is the only really satisfactory Bicycle Legging for Ladies' wear. Black, blue, tan, dark and cadet gray. Kept in all sizes. With price, send measure of ankle, calf, and below knee, length of legging and size of shoe. Express unless 10 cents is sent for mailing.
 SMITH & BYRON, 146 5th Avenue, Chicago, Ill.

Johnson Handspun Bicycle Cloth
 Write for Samples
 Wears Well
 Washes Well
 Particularly Adapted to Bicycling
 JOHNSON MANUFACTURING CO.
 83 Worth St., New York

A BICYCLE SKIRT.
 Some correspondents are inquiring what is worn by ladies when "on the wheel." The divided skirt is worn, which was described several months ago, for flannel, silk or cambric underwear, and one of a similar shape is worn when thus exercising. Have cheviot, tweed or flannel, plain, striped or in small, monotone plaids. Each leg of the skirt is fifty inches wide, hemmed on the lower edge and plaited or gathered at the upper part in a band or narrow yoke, the top being as wide as the bottom. Two paper-pattern houses have gotten this out, besides the design originally issued by the Dress Reform Society. A loose or belted blouse of the same material is worn, and the underwear is of the same idea as the skirt, usually consisting of a muslin and light flannel divided garment sewed to one yoke.

Figure 53. In response to user demands, changes in clothing accommodated the growing interest in exercising and bicycling. *Ladies Home Journal*, 1890s.

21st Century. Health, disease, exercise, bicycles, and high-performance apparel continue to be items of interest that are conveyed through communication design (see Figures 54–55). All of these topics have become commonplace, although innovations are ongoing. Broadcast, digital, and print media abound; they use design, imagery, and informative content to educate readers about current and new developments in these areas (see Figure 56–58). These outlets also provide forums for supporting and encouraging engagement with innovations, or providing user feedback, such as the Peloton advertising backlash (see Figure 58).

Similar to the development of new “bicycle cloth” in the 19th century, user demand for high-performance fabrics continues for both elite and casual needs. Leggings are a



Figure 54. “Infectious Theory of Alzheimer’s Disease Draws Fresh Interest,” National Public Radio (NPR), September, 2018.



Figure 55. News announcement about the measles outbreak, December 2019 (left) and how to make a mask to fight against Coronavirus, April 2020 (right), *CNN News*..



Figure 56. (Left) This article about how to lift weights correctly uses bold type, color, and visuals, to attract and educate. *Women’s Health*, September 2019. (Right) Social media also encourages and teaches about exercise, health, and demonstrates athletic wear.



Figure 57. Fitbit, launched in 2007, is an innovative technology that utilizes artificial intelligence to help provide continuous health monitoring and feedback.



Figure 59. An innovative exercising experience, the Peloton exercycle, founded in 2012, uses technology to connect users with trainers in disparate locations. A recent Peloton advertisement generated many opinions on social media, *AdAge*, December 2019.

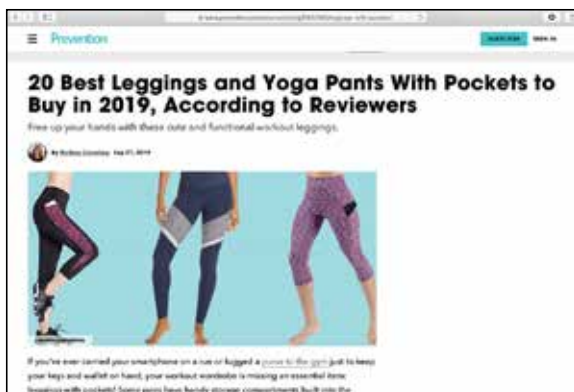


Figure 60. New leggings with pockets developed from user demand and communicated through digital media. *Prevention*, September 2019.



Figure 58. Articles inform readers about new ways to increase bicycle performance. Left: *Popular Mechanics*, Fall, 2019; right: *Popular Mechanics*, Winter, 2018–2019.



Figure 61. Article about a high performance jumpsuit for vacationers to the moon. *New York Times*, October, 2019.

popular garment, however, the demand for a way to carry a phone or keys has led designers and manufacturers to develop leggings with pockets (see Figure 60). Recently, the *New York Times* published an article about a jumpsuit for vacationers to the moon (Chang, 2019). The article uses clear text and compelling moving images to educate readers about the innovative possibility of amateur space travel (see Figure 61).

Many past novelties have become well-integrated into current lifestyles. Most individuals use cameras almost daily. People understand ideas about germs, health, exercise, independence, leisure, and convenience because of CD. Athletic wear like sports bras, leggings, and high-performance fabrics are commonplace. Articles promote the latest in health expertise and advertisements offer specialized exercise equipment, even some that harness artificial intelligence.

CD introduces innovations of previous technologies, such as a camera doorbell (Siminoff, 2014), internet-connected refrigerators, and prepackaged meal delivery services. These enjoy great popularity but were only adopted within the last 5 years.

In the 21st century, CD goes way beyond print magazines. It powers websites, apps, and social media platforms. These CD channels fuel people's understanding and engagement with new ideas and technologies; CD influences innovative developments and their integration into daily lives.

V. CONCLUSION

Summary

Popular magazines in America have been a significant cultural influence over the past 250 years, both visually and editorially (Tebbel and Zuckerman, 1991). This review of popular magazines demonstrates that CD was well developed in the late 19th century in the United States. It showed intention, creativity, and strategy (Jury, pg. 107). Through skillful use of design, imagery, and message, communication design of popular magazines of the 19th century engaged readers with new ideas and inventions. *LHJ* exemplifies ways that communication design of 19th-century popular magazines engaged the public and helped mainstream new ideas and technologies. The medium provided a network of support which helped readers integrate innovations into the home. This adoption spurred continual user demand for ongoing improvements that are integral to current lifestyles; the cycle continues today. By looking at two different examples in the 19th century, and their counterparts in the 21st, it is evident communication design of popular media continues to have an influence today. A similar cycle contributes to the adoption and integration of ideas, social changes, and innovations. This cycle moves innovations that are incremental or transformational, from the present to the future.

The same process that shapes our useful objects—cameras, buildings, furniture, computers, bicycles, knives, and forks—can be a tool for shaping how we live with them and with each other (Caplan, 2005, pg. 201).

The relationship between CD and innovation is critical to developments in business, computer science, health, machine learning, architecture, design, and many other fields, but its value is often unrealized and underappreciated. The field of CD is undergoing expansion, similar to the rapid developments of the nascent field in the late 19th century.

Some start-ups and innovators utilize the skills of communication designers to improve the organization, visual clarity and interest, and overall communication of visual materials. These improvements help make the innovators' work understandable, which

garners funding for production, making the next innovation possible. Consequently, the value of the design mind is sought after—that of the “humanist technologist who asks questions about what’s being made, who’s making it, and why” (Maeda, 2019). Contributions by communication designers are being incorporated at earlier and earlier stages of technological conceptualization (Kolko, 2010).

One reason for believing that designers could professionally address social issues is that their primary competence lies . . . in the mastery of a process that can help us solve problems or deal with predicaments (Caplan, pg. 201).

Communication designers are at the forefront, initiating the creation of cutting-edge products, services, and solutions of social impact. They are having an impact at all levels and in all fields. Potential life-saving, food-generating, efficiency-creating items may never see the light of day if the design, editorial content, and visuals do not communicate their value and feasibility to developers, scientists, and funders.

Limitations and Further Research

Communication design makes important contributions to innovation; it influences new advances and supports their integration into daily life by providing much-needed clarity, explanation, and visual interest. The design, visuals, message, support and feedback aspects of CD are key components that contribute to the introduction, integration, and advancements of new ideas and technologies. Even so, these key aspects are missing from innovation adoption cycles, business development models, and human-centered, design thinking approaches.

The scope of this research has provided only an initial look at the influence of CD on the diffusion and adoption of innovation. This topic could be expanded by deeper analysis of the ways design principles are used in popular media, both historically and currently. Further exploration could develop the diffusion and business canvas models to incorporate and harness the contributions CD can make to understanding, adoption, and advancements in innovation and business lifecycles.

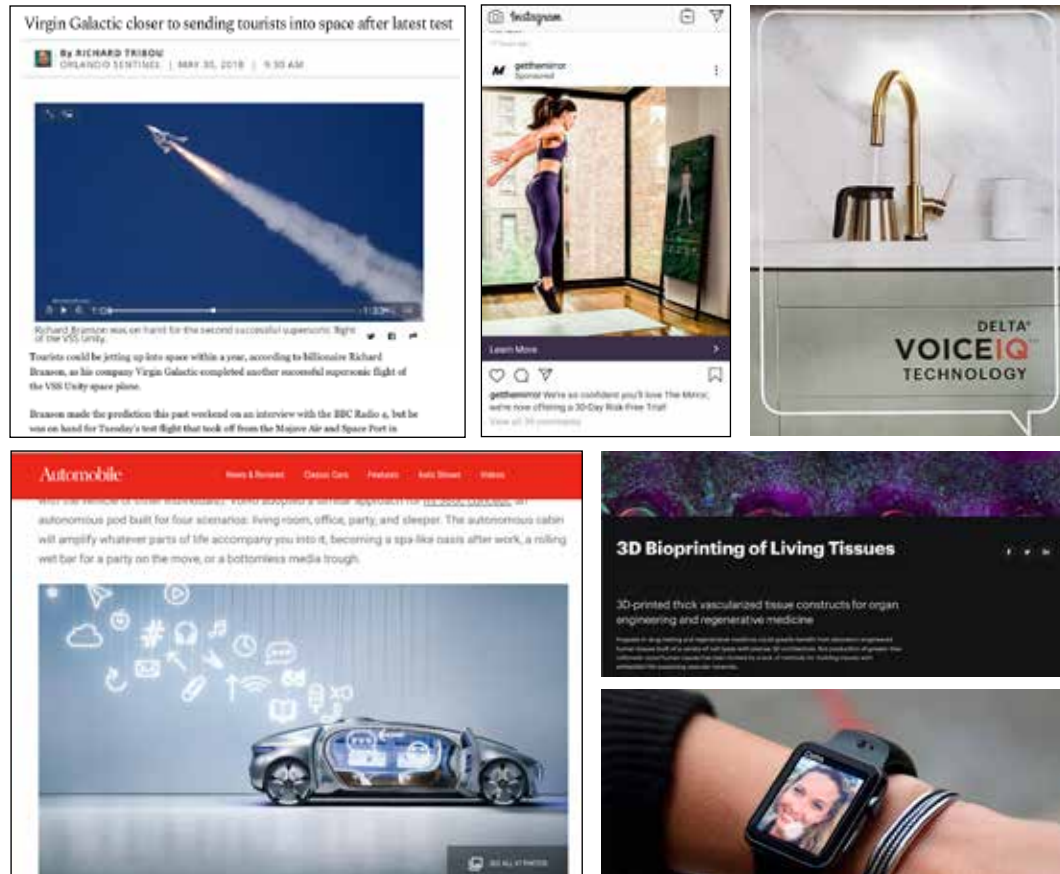


Figure 62. A few future possibilities of which CD is helping viewers/readers become aware.

Looking Forward

Today, CD is helping people become aware of new potential futures. Articles and advertisements educate and encourage readers to engage with innovations such as camera watches, voice-activated water faucets, interactive mirrors, the possibilities of automated vehicles, or vacationing on the moon (see Figure 62). Social networks provide venues for support, feedback, and demands for progress.

Figure 61. A few future possibilities of which CD is helping viewers/readers become aware.

In sum, for more than 100 years, communication design has helped people embrace advances that have contributed to the transformative age in which we now live. As communication design continues to influence the creation and adoption of innovations, what might the future hold? Still evident today—whether in an article, advertisement, or a posted comment—is the power of communication design to move innovation to its next level.

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