

Creating iPhone Dreams: Annihilating E-waste Nightmares

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ABSTRACT This article explores how the iPhone phenomenon was born, the reality of electronic waste, and the annihilation of news frames that link our use of electronics and electronic waste. Media sources and Google queries were searched for stories about the iPhone and electronic waste. Symbolic annihilation, push-and-pull media, and agenda-setting theory's obtrusive issues are used to explore the implications. The results indicate that stories about the iPhone are plentiful and stories about electronic-waste very few and far between. The results also clearly show that stories that make connections between iPhones and electronic waste are annihilated. This article highlights that the iPhone is an iconic and readily outdated example of the horrible "waste makers" we have become. The conclusion offers suggestions for ways forward.

KEYWORDS iPhone; Electronic waste/E-waste; Advertising; Symbolic annihilation

RÉSUMÉ **ABSTRACT** Cet article explore les origines du phénomène iPhone, la réalité des déchets électroniques, et l'annihilation de cadres journalistiques faisant le lien entre l'utilisation d'appareils électroniques et les déchets qui découlent de celle-ci. Pour ce faire, nous avons eu recours aux concepts suivants : l'annihilation symbolique, les médias push et pull et les questions imposantes dans le cadre de l'agenda setting (« mise à l'ordre du jour »). D'autre part, nous avons cherché dans les médias et sur Google des articles sur l'iPhone et les déchets électroniques. Nos résultats indiquent que les articles sur l'iPhone sont nombreux mais que ceux sur les déchets électroniques sont rares. Par surcroît, les résultats montrent clairement l'annihilation d'articles établissant un lien entre l'iPhone et les déchets électroniques. Cet article-ci souligne que l'iPhone est un exemple iconique, voué à une obsolescence perpétuelle, des gaspilleurs horribles que nous sommes devenus. La conclusion propose des pistes à suivre pour sortir de cette situation.

MOTS CLÉS iPhone; Electronic waste/E-waste; Advertising; Symbolic annihilation

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Introduction

According to the Pew Research Center (2010), 90 percent of Americans aged 19 to 28 sleep with their mobile phone on or next to their bed, and Statista (2015) reports that four years after its initial release, the iPhone had almost a quarter of the global smartphone market. Statista (2015) adds that Apple has been amongst the top 5 smartphone vendors in the world since 2009. By 2011 Apple had sold more than 72 million iPhones, generating revenue of U.S.\$47 billion and accounting for 40 percent of Apple's total earnings (Statista, 2016). Early in 2014, with the arrival of its fifth generation, iPhone surpassed the 500 million units sold mark (Bestmobs, 2014), and in the first two quarters of 2016, over 125 million iPhones had been sold (Statista, 2016). Indeed, when people sleep with their phone on their bed, they may very well be dreaming about their next iPhone. As ABC News reported about the release of the iPhone 5c and 5s in September 2013, "Out of control lines, people waiting hours, even days—Apple fans across America don't appear to be losing any enthusiasm over the iPhone" (ABC News, 2013). And the iPhone's iconic status means that people are telling stories about it. For example, a Lexis Nexis search for broadcast stories headlined "smart phones" in the past 10 years yields 56 stories, while a search for broadcast stories headlined "iPhone" in the past 10 years yields over 10 times that quantity—642 stories (and the iPhone was launched less than 10 years ago, in 2007).

There is, however, another side of the iPhone phenomenon. In his prescient book *The Waste Makers* (1960), Vance Packard stated that the "replacement revolution [was encouraging] people to get rid of the products they already own ... [by] encouraging people to throw things away" (p. 127). Packard also explored how the replacement revolution was successfully promoted—and what the disastrous effects would be. Packard predicted what we now know to be true: the planetary costs of the replacement revolution are too high. The planet is reeling.

Electronic waste, or e-waste, has become the fastest-growing component of the municipal waste stream in "developed" countries as well as several "developing" countries (Ravi, 2012). For example, according to the Electronics TakeBack Coalition (ETBC), more than 142,000 computers and 416,000 mobile devices are discarded *every day* in the United States (ETBC, 2012). Of all electronic items, the lifespan of the mobile phone is the shortest—and it is decreasing (Premalatha, Tabassum-Abbasi, Abbasi, & Abbasi, 2014). Indeed, Graham Pickren (2014) describes what we are facing as a "waste tsunami." It is also estimated that two percent of the global carbon footprint comes from the IT industry (Basel Action Network, 2011). And while electronic waste is an environmental and human health problem globally (see, for example, Olafisoye, Adefioye, & Osibote, 2013), it is especially acute for materially less affluent parts of the world (Iles, 2004). As Premalatha et al. (2014) point out, "[I]f the situation vis-a-vis e-waste is posing a challenge in most developed countries, it is alarmingly bad in the developing world" (p. 1577).

In this article these two realities of our digital age are juxtaposed: our adoration of all things electronic (in particular the iPhone) against the environmental implications. The article provides an overview of electronic waste, describes the context out of which our adoration of the iPhone was born, and establishes the theoretical and methodolog-

ical context for analyzing the frequency of media stories about iPhone and electronic waste. The article then discusses the findings and offers ideas for ways forward.

E-waste nightmares

Lurking below the surface of our digital age is the life cycle of our electronic gadgets—mining, assembly, use, disposal—and the toll that rabid consumption and rapid obsolescence of electronics is taking on the environment and workers' lives. Due to their incredible popularity and an increasingly short lifespan (Premalatha et al., 2014), mobile phones are being discarded in huge quantities. As mentioned above, the Electronics TakeBack Coalition estimates that 416,000 mobile devices are discarded *every day* in the United States alone. It is no wonder, therefore, that electronic waste has become the fastest-growing component of the municipal waste stream. In rich countries, electronic waste constitutes some eight percent by volume of municipal waste, growing at about four percent per year (Widmer, Oswald-Krapf, Sinha-Khetriwal, Schnellmann, & Böni, 2005). Kees Baldé, Feng Wang, Ruediger Kuehr, and Jaco Huisman highlight that, "The growing amount of e-waste has posed a significant challenge to waste management in both developing and developed countries" (2015, p. 4).

It is not, however, only electronics' end of life that is problematic. Every stage of electronics' life cycle takes a huge toll on human and environmental resources. For example, according to the Electronics TakeBack Coalition, to make one computer and monitor requires 530 pounds of fossil fuels, 48 pounds of chemicals, and one and a half tons of water (ETBC, 2012). Electronics such as computers and mobile phones also require precious metals. The adverse environmental impacts of producing these metals are significant, especially for precious and special metals that are mined from ores containing very little of these metals. "To produce 1 tonne of gold, palladium or platinum, CO₂ emissions of about 10,000 tonnes are generated. The gold-induced CO₂ emissions for the electronics industry exceed 5.1 million tonnes" (Premalatha et al., 2014, p. 1588).

The United Nations Environment Programme (UNEP) estimates that it takes 60 kilograms of CO₂e to manufacture a mobile phone (CO₂e is the "the global warming potential of all greenhouse gases ... measured in terms of the equivalent impact of carbon dioxide"). The UNEP also highlights that the use of mobile technologies generates waste. For example, the UNEP estimates that the use of a phone for one year produces twice the quantity of CO₂e as what is generated in the manufacturing process (UNEP as cited in GSMA, 2009). As stated earlier, the Basel Action Network (2011) states that two percent of the global carbon footprint comes from the IT industry. It is, however, the end of electronics' life cycle that is the most obvious, tangible stage of waste production. Globally an estimated 40 million tonnes of e-waste are generated each year (UNEP, 2009). Predictions are that developing countries will begin generating more "wasted" electronics than the developed world by 2017 (Yu, Williams, Ju, & Shao, 2010), with countries such as China and South Africa seeing 500 percent annual increases in communication electronics discards (Schluep et al., 2009).

And yet, one need only ask a lecture hall of undergraduate students, their workspaces cluttered with phones and computers, "Who has heard of electronic waste?"

to achieve an anecdotal sense of our limited awareness of electronic waste. A few hands will tentatively go up. Follow that question with a question about how many mobile phones and computers they have owned in their lifetime and the answer is many—so many that they have lost count.

Why have the students not thought about what happens to their phones and other electronics when they are done with them? The answer may be symbolic annihilation. Symbolic annihilation proposes that what the media *do not show us* and *do not tell us* about the world, and those with whom we share it, is just as important as what the media do show and tell us (Gerbner & Gross, 1976; Shanahan & Morgan, 1999; Tuchman, 1978). “Representation ... signifies social existence; absence means symbolic annihilation” (Gerbner & Gross, 1976, p. 182). Mobile phones have social existence. The mobile phone is in greater demand than any other electronic device. As Kevin Kimberlin points out, “No other technology has impacted us like the mobile phone. It’s the fastest growing manmade phenomenon ever—from zero to 7.2 billion in three decades” (as quoted in Boren, 2014). And no mobile phone is in greater demand than the iPhone.

In what follows, the context for the birth of the iPhone is explored. The frequency of iPhone stories vs. electronic waste stories in the mass media is then compared. Symbolic annihilation as well as hypocognition, push-pull media, and obtrusive issues are used to make sense of the findings and implications.

Creating iPhone dreams

By the time Steve Jobs walked onto the Moscone Center stage to give his keynote address in San Francisco on January 9, 2007, he was already a computer and entrepreneurial superstar. His short greying hair, round glasses, black turtleneck, and comfortable blue jeans were well known to those in attendance and many around the world. Ryan Black (2007) reported that people camped out in the line overnight and that, as Jobs arrived onstage, people stood on their chairs to cheer him. Jobs started his speech by promising revolution. And those listening had reason to believe him. As Jobs (2007) pointed out, Apple had already been part of several technology revolutions.

1984, introduced the Macintosh. It didn’t just change Apple. It changed the whole computer industry. In 2001, we introduced the first iPod, and it didn’t just change the way we all listen to music, it changed the entire music industry. (para. 1).

When the iPhone was launched, therefore, as was the case with the Macintosh computer and the iPod, the revolution that Jobs promised was not based on an invention of a medium that did not previously exist. As John Edson writes, Apple’s iterations are about “the obsession, persistence, and focus to keep things simple, improve the details, and continue making technology a more seamless extension of ourselves” (2013, para. 3) rather than entirely new innovations. Beth Snyder Bulik (2008) highlights that at the core of Apple’s advertising and marketing is a strategy to enter an existing market and insert products that are “easy to use and fabulous to look at, and packaged ... as a necessary lifestyle for the cool and hip and those who just want to be.”

Therefore, while the personal computer and the ability to listen to music on a “personal device” were already well established when Jobs launched the Macintosh and the iPod, what he was promising was an iterative revolution (for example, the iteration that the computer could be personal by being small). Indeed, during his 1984 introduction to the Macintosh computer, the computer with whom Jobs shared the stage spoke to this smallness, saying, “Unaccustomed as I am to public speaking, I’d like to share with you a maxim I thought of the first time I met an IBM Mainframe: NEVER TRUST A COMPUTER YOU CAN’T LIFT” (Jobs, 1984). The crowd of thousands went wild and leapt to their feet.

During his 2001 launch of the iPod, Jobs noted that music was already portable but the iPod would make music that much more portable and cost-effective. “The coolest thing about iPod,” said Jobs, “is that your entire music library fits in your pocket. ... You can take your whole music library with you, right in your pocket” (Jobs, 2001, para. 9).

In 2007, therefore, the formula for Jobs’ attire and the launch of the iPhone were in place. The turtlenecked Jobs was going to share Apple’s newest iteration—or, as Jobs playfully offered, “[T]oday, we’re introducing three revolutionary products.... The first one is a widescreen iPod with touchscreen. The second is a revolutionary mobile phone. And the third is a breakthrough Internet communications device” (Jobs, 2007, para. 1). Jobs mentioned these three elements multiple times such that the audience began to laugh. He then asked, “Are you getting it?” and confirmed what many in the audience were hoping for: these elements were not three separate devices but one new phone—a phone called the iPhone. (The audience seemingly could not believe this and began laughing and looking at each other, delighted.)

“Today, Apple is going to reinvent the phone” (2007, para. 1), Jobs said, again to great applause. On the screen a picture appeared of a white phone with a small mobile phone screen on the top and a large “old phone” rotary dial on the bottom. The audience roared with laughter. After this Jobs got serious and waited a moment before acknowledging, as he did when he first introduced the Mac and the iPod, that yes, there are already phones (indeed, a long history of phones, to which the rotary dial attested) and there is already a smartphone industry. Jobs proposed, however, that these “smartphones” combined phone, email, and Internet capabilities but with limited success. “The problem is that they’re not so smart and they’re not so easy to use” (Jobs, 2007, para. 2). The iPhone Jobs was introducing would “leapfrog” into the existing smartphone market and offer a phone that is “way smarter than any mobile device has ever been, and super-easy to use” (Jobs, 2007, para. 2).

Hundreds of thousands of iPhones were sold in the first weekend they were available—estimates vary between 500,000 and 1,000,000 (“Where Would Jesus Queue?” 2007). Jobs’ Macworld keynote address no doubt played a role in the iPhone’s immediate success. A LexisNexis search of “iPhone” in the world’s newspapers in the six months after Jobs launched the iPhone (but prior to the phone being available for purchase) indicates that “iPhone” appeared 1,870 times. Something else was going on that went well beyond the iPhone’s launch. Indeed, Jonah Bloom (2007), writing in *Advertising Age*, suggested that the iPhone was a huge success “[b]ecause, in short, it ...

inspire[d] irrational consumer lust.” And Apple’s cultivation of irrational consumer lust began long before the iPhone.

Apple’s stories

MACINTOSH’S 1984 COMMERCIAL

Arguably the seeds for Apple lust were first sown at the largest ad venue in the world: the Super Bowl. It was Super Bowl 18, 1984, when Apple’s one-minute Macintosh “1984” television advertisement, directed by acclaimed director Ridley Scott, aired. According to Steve Hayden (2011), writing in *Adweek*, “The brief for ‘1984’ was simple: Steve Jobs said, ‘I want to stop the world in its tracks.’” And according to *Forbes* magazine, which called the ad “the best Super Bowl ad of all time” (cited in Smith, 2012), Jobs got his wish.

The ad included black and white images of automatons shuffling toward a theatre, a huge screen with a Big Brother like talking head, and scary helmeted military types chasing a woman with red shorts and a white singlet running into the theatre and smashing the screen by throwing a hammer. The tagline was “On January 24th, Apple Computer will introduce the Macintosh. And you’ll see why 1984 won’t be like 1984.” The ad set in motion the branding of a company that does not “build things people want or need—but build[s] things people desire” (Gartner analyst Mike McGuire as quoted in Bulik, 2008, para. 3). Nora Draper (2014) alludes to Goffman (1976) when she writes that advertising’s images are “often hyper-ritualized, showing the performers in exaggerated, simplified, or amusing interactions to emphasize the ideological meaning” (p. 61). This was certainly true of Apple’s revolutionary commercial; research has shown that the ad’s images of an Orwellian “Big Brother” and a shattered screen were successful at conveying that this was a product that broke the mold and could change our lives forever (Sayre, Wells, & Moriarty, 1996).

IPOD’S SILHOUETTE COMMERCIAL

The advertising brief for the iPod was to “empower people” (Pedersen, 2008, p. 497). The iPod silhouette advertisements continued desire branding with—often black—“in motion” silhouettes of a person holding a white iPod and earphones. Eric Jenkins (2008) proposes that the iPod ad contained “five primary compositional elements: the dancing silhouettes, a uniform neon backdrop, upbeat music, the white iPod, and a small amount of text and logo” (p. 475). Ad viewers were able to vicariously share in the iPod listeners’ “hip, energetic, and youthful” (p. 475) joy through hearing their music and witnessing their movement. As Isabel Pedersen (2008) notes:

The iPod subjects simply live and dance; they do not *exist for* any other objectified reason, they simply exist... We are not party to the reasons behind the dance; we only see the exuberant and alluring energy played out in front of us. These dancers are living, moving subjects and not much more than that; they achieve the everyone/anyone appeal that Apple clearly wants to signify. iPods involve *lives* rather than *work*. (p. 498, italics in the original)

Jenkins (2008) goes a step further in labeling the iPod silhouette commercials “iconic” because of their embodiment of “a particular hypostasis—the experience of immersion in music.... The brilliance of Apple’s iconic portrayal is in bringing together

so many associated elements of this common phenomenological experience. The dancing, the rhythmic music, the headphones, and the neon backdrop all reference the experience of immersion in music” (pp. 475–477).

IPHONE’S HELLO COMMERCIAL

Luke Villapaz (2013) writes that iPhone advertising began with a “novel idea ... that Apple had created the next generation of the phone” (para. 1). The “Hello” ad, which aired during the Academy Awards on March 2, 2007, begins with the ringing of an old rotary dial phone and then cycles through a series of thirty-one movie and television moments in which a character from TV or the movies holds a phone and says, simply, “Hello” (or a version thereof). The sequence starts with Lucille Ball in *I Love Lucy* (circa 1956–1964) and includes other older actors, movies, and shows such as Clark Gable in *It Happened One Night* (1934) and more recent, and less human, examples such as Mr. Incredible from *The Incredibles* (2004). The montage is a celebration of our cultural connection to the phone and to each other. (The complete list of the “Hello” clips can be found in Appendix A.) At the end of the ad there is a hand holding the iPhone; on the phone there is an image of a man and the name Johnny Appleseed (a fun “shared” apple-centric stand-in for the name of someone who might call us). The screen flashes to black with a white “Hello,” then “Available in June” in white text and finally a small white Apple logo.

Jenkins (2008) proposes that an image—and one could suggest by extension a product—becomes iconic, or “divine,” “only when it becomes culturally accepted as a natural fusion of meaning and form through continued use” (p. 480). Jenkins’ focus was the iPod, but the three elements of meaning, form, and continued use are equally critical in understanding advertising’s role in creating the iconic iPhone. What the “Hello” ad highlighted was that the phone already had generations of cultural acceptance and continual use. What the “Hello” ad, and subsequent iPhone ads, contributed was new meaning and form. The iPhone would be a phone like all of these other phones, but the new meanings and forms would supply the revolution that Jobs promised. Indeed, if the “Hello” ad was fitting the iPhone into the history of phones (and how beloved the phone is), the next generation of iPhone advertisements was focused on the iPhone’s revolutionary meanings and forms.

In June 2007 a post-“Hello” series of ads aired in which the only thing that could be seen was a hand holding an iPhone. A simple guitar-based tune underscored a male voice describing a variety of iPhone nuts, bolts, and features—what Villapaz (2013) refers to as “mini-tutorials”: how to turn the phone on, orient the screen, listen to music, get emails, access the Web, and, finally, answer the phone—all by swiping and tapping the screen. One ad highlighted the flow of activity that the iPhone could facilitate, starting with a clip from the movie *Pirates of the Caribbean* in which a huge octopus can be seen. “The voice” then expresses interest in calamari, which leads to a search on a San Francisco map for seafood, then to the locating of the nearest seafood restaurant “Pacific Catch” (located right on the Pacific Ocean). The ad highlighted usability (including using the phone in the traditional sense). The ad also highlighted “revolutionary functions” that allow the user to undertake very desirable tasks (e.g., tracking down seafood at the edge of the Pacific Ocean).

Several other “hand” ads highlighted how “real” and useful the Internet is on the iPhone. For example, in one, “the voice” says that “This is not a ‘modified’ or ‘mobile’ or ‘kinda-sorta’ Internet but just the Internet—on your phone.” And this “real Internet” can, as is highlighted in another ad, be used to explore very cool vacation possibilities, check out the traffic on the way to the San Francisco airport, book an oceanfront room in Hawaii—and see how one’s stock is doing (presumably to see whether payment for the vacation is possible). The final three ads in the series focused on the reality that all of the iPhone’s incredible abilities could fit in your pocket. As one of the ads offered, “All these years you’ve gone through your day without email like this in your pocket, or stock updates like this in your pocket or Internet like this in your pocket and you survived—the question is, how?!”

Jenkins’ (2008) proposal that product iconicity, or divinity, can be achieved when the product “becomes culturally accepted as a natural fusion of meaning and form through continued use” (p. 480) is perhaps best seen in these early iPhone advertisements. Each ad celebrates the phone’s meaning and form through its use in the pursuit of very desirable outcomes. Rhetorical figures (schemes, tropes) can also help to make sense of the effectiveness of early iPhone advertising. Research on rhetorical figures has linked people’s enjoyment of deviations from “expected” language (e.g., use of alliteration and rhyme) and cleverness in expression (e.g., puns, metaphors) with a liking of the product being advertised (van Enschoot, Beckers, & van Mulken, 2010; van Enschoot & Hoeken, 2015). The effectiveness of the advertising that draws upon rhetorical figures seems to be the positive feelings that people have when they “decipher” the messages associated with the product being advertised. Advertisers can aid in this deciphering process through “anchoring” (providing visual or verbal cues).

All of Apple’s product launch advertisements, but especially early iPhone advertisements, have used rhetorical figures and anchoring beautifully. The unknowns were not in the form of metaphors, puns, or rhyme but rather a “known object”—smartphone—with many “unknown” functions: sending emails, watching movies, discovering restaurants, finding routes on a map, checking stock prices, et cetera. With both visual and verbal anchoring (“the hand” using the phone and “the voice” describing what is taking place), the ads facilitated viewers’ engaged, and presumably enjoyable, discovery.

The success of iPhone advertising is best understood in the context of consumer demand. According to *Wired* magazine, “days before the iPhone finally landed [on] June 29, hundreds of fanatical consumers camped outside Apple and AT&T stores for the \$600 gadget” (Chen, 2009, para. 3). Clearly the reasons for the long lines filled with exuberant, exhausted, hyped, and steadfast Apple fans are varied and even mysterious—but calling the iPhone iconic, even divine, seems reasonable. Indeed, the intense fervour and somewhat ethereal quality of iPhone enthusiasm led to the nickname of “Jesus phone” (“Where Would Jesus Queue?” 2007). As with other “revolutionary” Apple products, such as the personal computer and the iPod, the iPhone inserted itself into an existing market and said, “I am all of these things that you love about the existing versions, and look at the ways I am much better.”

In Canada the iPhone hype was that much more tantalizing as Canadians were exposed to the launch and advertising but forced to watch their U.S. neighbours buy

iPhones months before the phones were available north of the border. In her article “What, No Apple iPhone? You Must Be Canadian,” Pedersen (2008) highlights that while Canadians were “immersed [in iPhone advertising], they found themselves sidelined from ‘iPhone culture’” (p. 492). Once able to participate, many Canadians were thrilled. As one Canadian wrote in an open letter to Steve Jobs,

My name is James and I would like to thank you for creating the wonderful iPhone device. We really think that you will change the world with it, just as you changed the world with the iPod. We were so happy to learn that on July 11th, we would finally be able to buy the iPhone and legally use it in Canada. (as cited in Pedersen, 2008, p. 506)

The skill and agility with which Apple launched its must-have, will-wait-in-line-all-night iPhone was just the beginning. Since 2007, Apple has introduced seven generations of the iPhone (with various additional “sub-generations”). Indeed, Steve Jobs was correct about many things, including that the iPhone could arrive in an already established mobile phone market and be a revolutionary force. The iPhone was in demand even before it arrived on the market, and iPhone interest has never seriously waned.

With each new iteration, the loyal fans sleep in line and vie for the most in-demand colours and latest must-have changes. In fact, the lines keep getting longer. As reported on *Tech Crunch*, “The line [for the iPhone 5c and 5s] at Apple’s 5th Avenue NYC flagship store was 1,417 people long at 8 a.m. ET ... which is 83 percent longer than the iPhone 5 line at the same time” (Etherington, 2013, para. 2). Some of those in line might have been interested in replacing their iPhone 5, which, as Bryan Wolfe discusses (2013), was retired by Apple after only one year on the market. Packard’s Replacement Revolution was in full swing—even colour could dictate the need to replace. “All reports ... seem to be echoing a common refrain of the new gold iPhone finish being the rarest and hardest to get your hands on ... being attractive to buyers because it’s so different and unique from previous iPhone color options” (Etherington, 2013, para. 7).

And what happens to all of those unwanted phones? They make up the bulk of those 416,000 mobile devices that are discarded every day in the United States (ETBC, 2012) and account for Pickren’s global electronic waste tsunami (2014). But swimming along among the new gold-finished iPhones and endless other updates, is anyone worried about the tsunami?

Annihilation: E-waste? What e-waste?

Symbolic annihilation research has focused on fictional television and the lack of representation of types of people. As Debra Merskin (1998) explains:

The basic idea [of symbolic annihilation] is that groups that are valued in a particular culture tend to be shown frequently in the media, and viewers/readers come to learn about these groups’ purported characteristics and their implied value to the culture-at-large by virtue of their media exposure. But when certain groups are not valued in that same culture, the media tend not to include them in their storylines and, in the process, cast them aside and disenfranchise them by not showing them. (p. 335)

By conducting content analyses of prime-time television, George Gerbner and Larry Gross (1976) found that those who were given dramatic importance and social power were male (approximately three-quarters of all leading characters), American, middle- to upper-class, and “in the prime of life” (p. 183). Gerbner and Gross expanded on the implications of being symbolically annihilated, stating, “Being buffeted by events and victimized by people denotes social impotence; ability to wrest events about, to act freely, boldly, and effectively is a mark of dramatic importance and social power” (p. 183).

Other studies have explored topics such as the symbolic annihilation of Native Americans in fictional television and film (Merskin, 1998) and disenfranchised groups in cartoons (Klein & Shiffman, 2009). The use of symbolic annihilation to analyze the implications for the absence of an issue (as opposed to the absence of certain types of people) in fictional television is less common but does exist. For example, researchers have explored implications for the symbolic annihilation of the natural environment in fictional television (Good, 2007, 2013; McComas, Shanahan, & Butler, 2001; Shanahan & McComas, 1999). Research on symbolic annihilation in non-fictional media is also less common but has been conducted. For example, Dustin Harp, Summer Harlow, and Jaime Loke (2013) explored the symbolic annihilation of women in globalization discourse in news magazines; Stanley (2012) researched the symbolic annihilation of women in newspaper photographs. This study therefore adds to these examples of symbolic annihilation research by exploring non-fiction print news, broadcast news, and Google searches for the frequency and type of iPhone stories and stories about electronic waste.

Symbolic annihilation analysis

IPHONE VS. ELECTRONIC WASTE COVERAGE

In what follows, the frequency of references to iPhone communication and references to communication about electronic waste is juxtaposed to explore the symbolic annihilation of electronic waste. As a first step, a Google search was conducted to create a broad indicator for “the information universe.” Given that Google searches are individualized, not all searches will yield the same results, but prior to conducting the searches, the cookies and Internet history (e.g., temporary Internet files) were deleted from the search computer. A search on the term “iPhone” returned 1.59 billion hits. A search on “waste” returned 473 million hits. The term “e-waste” returned 83.3 million hits, and “electronic waste” returned 14.1 million hits. In the Google definition of the universe of information, the iPhone is an order of magnitude greater than categories related to waste (generally) or electronic waste (more specifically). Use of Google as a general indicator of “what’s out there” is, however, done under the advisement that, as J. Pedro Caranana (2012) points out:

[E]normous progress represented by access to corpuses of sources that are so abundant and so fast and easy to use justifies the use of Internet search engines by researchers to obtain their Corpuses. But search engines do not yet allow researchers to obtain complete universes or samples that are representative of the materials existing on-line. (p. 38)

For questions of where stories about the iPhone and electronic waste are being told and with what frequency, a quantitative newspaper and broadcast news content analysis was conducted. The searches were conducted in two time-frames: January 1 to December 31, 2007 (the iPhone was launched by Steve Jobs January 9, 2007), and July 1, 2014 to July 1, 2015 (the most recent year available at the time of writing). The searches were conducted in three geographic areas (Canada, the United States, and international) and two contexts (mainstream newspapers and broadcast news transcripts).

The search on international newspapers was conducted using the Lexis Nexis Major World Publications database. The Major World Publications file “contains full-text news sources from around the world which are held in high esteem for their content reliability. This includes [approximately 500 of] the world’s major newspapers, magazines and trade publications which are relied upon for the accuracy and integrity of their reporting” (Lexis Nexis, 2009). Canadian newspapers were searched using the Newsstream Major Dailies database, which “offers unparalleled access to the full text of nearly 300 newspapers from Canada’s leading publishers” (Canadian Newsstream, n.d.).

International broadcast news was searched using seven news outlets’ transcripts in the Lexis Nexis’ broadcast transcripts database (ABC News, CBS News, CNBC News, CNN, Fox News Network, MSNBC, and NBC News). Finally, Canadian broadcast news was searched using Lexis Nexis’ sole Canadian broadcast transcript (CTV news).

Results

Newspapers and broadcast transcripts: 2007

The Lexis Nexis Major World Publications search for the term “iPhone” (anywhere in the article) yielded 5,306 hits, while “electronic waste” or “e-waste” yielded 513 hits. The Canadian Newsstream search for the term “iPhone” (anywhere in the article) yielded 1,257 hits, while “electronic waste” or “e-waste” yielded 94 hits. In U.S. broadcast news, “iPhone” appeared 477 times and “electronic waste” or “e-waste” appeared 18 times. In Canadian broadcast news, “iPhone” appeared 15 times and there was only a single reference to “electronic waste” or “e-waste.”

When articles containing “iPhone” and “electronic waste” or “e-waste” (anywhere in the article) were searched in the Lexis Nexis Major World Publications database, there were four hits. The Canadian Newsstream search for “iPhone” and “electronic waste” or “e-waste” (anywhere in the article) yielded two hits. In U.S. broadcast news, the terms “iPhone” and “electronic waste” or “e-waste” did not appear, while in Canadian broadcast news, “iPhone” and “electronic waste” or “e-waste” had a single hit. The broader search on “phone” and “electronic waste” or “e-waste” yielded 128 hits in the international newspapers and 10 hits in the Canadian newspapers. “Phone” and “electronic waste” or “e-waste” yielded nine hits in U.S. broadcast news and a single hit in Canadian broadcast news.

Newspaper and broadcast transcripts: July 1, 2014, to July 1, 2015

The Lexis Nexis Major World Publications search for “iPhone” (anywhere in the article) yielded 21,660 hits (a 308 percent increase from 2007), while a search for “electronic waste” or “e-waste” yielded 287 hits (a 44 percent decrease from 2007). The Canadian Newsstream search for “iPhone” (anywhere in the article) yielded 1,679 hits

(a 33 percent *increase* from 2007), while “electronic waste” or “e-waste” yielded 29 hits (a 69 percent *decrease* from 2007).

In U.S. broadcast news, “iPhone” appeared 1,300 times (a 173 percent *increase* from 2007), and “electronic waste” or “e-waste” appeared three times (an 83 percent *decrease* from 2007). In Canadian broadcast news, iPhone appeared 27 times (an 80 percent *increase* from 2007), and “electronic waste” appeared twice (an *increase* from one hit in 2007).

When articles containing “iPhone” and “electronic waste” or “e-waste” (anywhere in the article) were searched in the Lexis Nexis Major World Newspapers database, there were six hits (a *increase* from four hits in 2007). The Canadian Newsstand search for “iPhone” and “electronic waste” or “e-waste” (anywhere in the article) yielded a single hit (a *decrease* from two in 2007). Stories containing “iPhone” and “electronic waste” or “e-waste” did not appear in either the U.S. or Canadian broadcast news (there was a single hit in Canadian broadcast news in 2007). A broader search on “phone” and “electronic waste” or “e-waste” yielded 79 hits in the international newspapers (a 38 percent *decrease* from 2007) and five in the Canadian newspapers (a *decrease* from 10 in 2007). “Phone” and “electronic waste” or “e-waste” yielded two hits in U.S. broadcast news (a *decrease* from nine in 2007) and a single hit in Canadian broadcast news (the same as in 2007). (A chart summarizing these results can be found in Appendix B.)

Discussion

Google searches and trends

The media’s content is finite; only some stories are told. Symbolic annihilation proposes that there is social power, agency, and meaning given to the content of the stories (people, issues, etc.) that are told (Gerbner & Gross, 1976), and there is a lack of power, disenfranchisement, and disappearance for the stories (people, issues, etc.) that are not told. The results from the content analyses undertaken here highlight this theory: beginning with the launch of the Apple smartphone in January 2007, the story of Apple’s iPhone has been told and retold with increasing frequency in the print and broadcast news, while the story of electronic waste is told much less often and decreasingly (in spite of the fact that, as has been highlighted, electronic waste is a much more significant global problem now than it was in 2007). Indeed, we would expect that the news, in particular, would be the place for stories about electronic waste. Stories about electronic waste should be at least as pertinent to the news media, in their role as fourth estate watchdogs, as stories about the iPhone. News stories that include the terms “iPhone” and “electronic waste” or “e-waste,” or even stories that include phones in general and electronic waste or e-waste, are essentially non-existent.

George Lakoff’s (2010) concept of “hypocognition” helps to explore the implications for these findings. Lakoff draws on cognitive and brain science to highlight that all of our thinking involves frames—or making links between words and concepts. Hypocognition refers to what happens when there is a lack of frames or links for a concept. For example, Lakoff highlighted the “environmental action” frame and the reality that it tends to be about individual action (e.g., recycling, reducing electricity use, driving less) and does not include political action (e.g., policy change). Without examples of po-

litical action in “environmental action” frames, there is hypocognition: when we think of the need for environmental change, we are unlikely to include government responsibility in those frames. Lakoff (2010) further proposed that there are severe negative implications for our “massive hypocognition in the case of the environment” (p. 76).

Arguably, the absence of electronic waste in phone frames (and the decreasing frames about electronic waste in general) means that there is hypocognition linking these two concepts. Note that this is not to say that electronic waste stories in newspapers and television are entirely absent. However, in the same way that Lakoff highlights concerns for hypocognition when political action is left out of “environmental action” frames, there can be hypocognition when electronic waste is not framed with mobile phones generally and the iPhone—the iconic mobile phone—in particular.

One indication of whether electronic/e-waste hypocognition is occurring would be to explore whether we are expressing knowledge of, and interest in, electronic waste. The following section looks for electronic waste in “pull” as opposed to the “push” content that was analyzed above. As Andreas Veglis (2008) explains, “A [media] channel is defined as push oriented when forced upon the end user without a specific request from him or her [and] a channel is characterized as pull oriented when the end user makes a deliberate action to access the information” (p. 117). There is, however, a relationship between what the media creators “push” and what the media consumers “pull.” Push content, such as newspaper and television news, informs us about a person, event, issue, et cetera, and we go to the pull media, such as the Internet, to investigate further and learn more.

The agenda-setting concept of obtrusive issues is useful here. Agenda-setting researchers have spent decades exploring the relationship between the news agenda (prioritizing of stories) and people’s sense of what is important. For example, McCombs and Shaw (1993) pointed out that “[b]oth the selection of objects for attention and the selection of frames for thinking about these objects are powerful agenda-setting roles” (p. 62). The effects of agenda-setting relate to people’s experiences with, or the “obtrusiveness” of, the issue. In experimental research, GangHeong Lee (2004) found that exposure over time is the key to generating interest in issues that are not in people’s lived experience.

People will have a stack of information relevant to obtrusive issues that comes from their daily experience. So the media’s coverage of those issues can easily prime people’s cognition and stimulate their information processing within a short time-period. For the public, once the priorities of an issue of high subjective importance have been addressed, there may be very little surplus compassion left over for social issues of less personal significance. ... Therefore, an unobtrusive issue [an issue that is not personally experienced or of high subjective importance] will need a longer time-period to get people’s attention. (p. 162)

Electronic waste is an unobtrusive issue for the vast majority of North Americans (i.e., we do not experience the devastating effects of electronic waste first-hand). One way to explore whether the lack of stories about this unobtrusive issue has been man-

ifested in hypocognition would be to look at the frequency of “pull” stories/information about electronic waste.

Pull stories

In order to explore electronic waste hypocognition, pull content for “electronic waste” and pull content for “iPhone” was contrasted in Google searches (January 2007 to May 2015). According to Google, globally “iPhone6” was the most searched “consumer electronics” term of 2014 (Google, 2015a). More telling, perhaps, is that “iPhone” can be an incredibly popular search term in any category. For example “iPhone6” was the third most popular search term in Canada for 2014, behind “Robin Williams” and “World Cup” (Google, 2015b). Electronic waste stories are nowhere to be found on these “most popular search” lists, but Google Trends—“which graphs how often a term is used over time” (Google)—provides some pull story insight.

When the Google search results are compared for “iPhone,” “electronic waste,” and “e-waste” (see Appendix C), the huge popularity of “iPhone” searches renders searches for “electronic waste” and “e-waste” to a flat line of zero. Google Trends is unable to chart the massive discrepancy in search popularity between “iPhone” and “electronic waste” or “e-waste.” There were searches on “electronic waste” in 2014 and, somewhat more frequently, on “e-waste” (see Appendix D), but they simply do not register when compared to iPhone searches. A more popular search comparison, for example between the “iPhone” and the Canadian mobile phone “Blackberry,” does provide results for both terms (see Appendix E). Indeed, the results show that for a brief period of time, when the iPhone was first launched in early January 2007, there was greater interest in Blackberry than the iPhone. Subsequent to 2007, however, the iPhone has reigned supreme.

Ways forward, future research, and limitations

Symbolic annihilation proposes that our understanding of the world is affected not only by the stories we are told but also by the stories we are not told. For example, in their 2013 study of women in news magazines, Harp et al. (2013) concluded that the lack of stories about women meant that “these magazines continue to treat globalization within the masculine realm, which in effect serves to maintain female subordination” (p. 274). Similarly, the current study found that stories about communication technologies, such as the iPhone, are frequently told and in diverse forms. The exploration of Apple advertising highlights that the story creation can be extremely well funded and very thoughtfully developed. Stories about the massive environmental footprint of electronic communication technologies, such as the iPhone, are rarely told. Stories that combine discussion of phones and electronic waste are non-existent: annihilated.

As a result of this lack of “push” information (e.g., from newspapers and television news) about electronic waste, we lack the knowledge of, and interest in, “pull” information (e.g., from online sources) about electronic waste. The devastating consequence is that the environment suffers in its subordination to our carefully constructed and maintained coveting of electronic gadgets. We celebrate communication technologies such as the iPhone while avoiding acknowledgement of the environmental impact of

those technologies. Research is needed that explores how best to help people critically analyze the stories they receive—and do not receive—about communication technologies. We know that media literacy is effective (see, for example, Martens & Hobbs, 2015). Digital media literacy that includes a critical analysis of the environmental impact of digital communication technologies is imperative—for young people in particular.

Research is similarly needed to evaluate and make sense of the complexities of electronic waste. Electronic waste recycling can be pointed to as a panacea, but in many countries electronic waste recycling occurs with little health and safety regulation. Pickren's (2014) article "Geographies of e-Waste: Towards a Political Ecology Approach to e-Waste and Digital Technologies" is an example of research trying to examine the complexities of electronic waste. Pickren states, "An air of inevitability certainly permeates much existing research on e-waste," and he asks, "How are such narratives produced, circulated, and contested?" (p. 119). Pickren goes on to highlight that electronic waste research is needed that explores "the piles of e-waste documented around the world as not just problems of management but as signaling the more difficult question[s] of the (un)sustainability of the current social, economic, cultural, and political moment" (p. 121). Broader analyses of social, economic, cultural, and political realities need to be studied at all stages of the life cycle of electronics.

This article provides a snapshot of stories about the iPhone vs. stories about electronic waste. Using the cultivation theory concept of symbolic annihilation—as well as hypocognition, push-pull media, and obtrusive issues—a case is made for why keyword frequency (including the absence of keywords) is of interest. That said, future research focusing on the content of iPhone and electronic waste stories would provide important context. Future research should also offer insight into how individuals make sense of the endless appeals they receive to be a part of the "replacement revolution" and how individuals understand what happens to their technologies once those technologies are trashed.

Conclusion

"In 2014 we searched trillions of times. What do these searches say about us?" Google asks (2015a). The searches highlighted above remind us that we cannot know, or be interested in, what we have not experienced or been told about. In the absence of the manufacturing corporations and news outlets putting our voracious electronics consumption in a context of human and environmental suffering, perhaps we need another institution to help. Perhaps education is the bridge between iPhone dreams and environmental nightmares. Education can help us make sense of not only electronic waste but also the entire life cycle of our electronics. Almost 30 years ago, Neil Postman offered the following thoughts at the end of his seminal book *Amusing Ourselves to Death*:

It is the acknowledged task of the schools to assist the young in learning how to interpret the symbols of their culture. That this task should now require that they learn how to distance themselves from their forms of information is not so bizarre an enterprise that we cannot hope for its inclusion in the curriculum; even hope that it will be placed at the center of education. (1986, p. 163)

Distance from forms of information and technologies, and interpretation of cultural symbols, has never been more important.

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Appendix A

iPhone “Hello” ad list of appearances

Lucille Ball in *I Love Lucy Show*, 1956–1964
Jackie Gleason in *The Honeymooners*, 1955–1956
Humphrey Bogart as Sam Spade in *The Maltese Falcon*, 1941
Marlon Brando
Jerry Lewis in *The Bellboy*, 1960
Marilyn Monroe in *Some Like It Hot*, 1959
Clark Gable in *It Happened One Night*, 1934
Peter Sellers in *The Pink Panther*, 1963
Steve McQueen in *The Getaway*, 1972
Richard Dreyfuss in *American Graffiti*, 1973
Burt Reynolds in *Boogie Nights*, 1997
Bea Benaderet as Betty Rubble in *The Flintstones*, 1959–1966
Robert Redford in *Three Days of the Condor*, 1975
Michael J. Fox in *Back to the Future*, 1985
Harrison Ford as Dr. Richard Kimble in *The Fugitive*, 1993
John Cusack Rob Gordon in *High Fidelity*, 2000
Audrey Tautou as *Amelie*, 2001
Kevin Spacey—*L.A. Confidential*, 1997
William H. Macy in *Fargo*, 1996
Dustin Hoffman, *Meet the Fockers*, 2004
Will Ferrell in *The Anchorman*, 2004
Sarah Jessica Parker, *Sex and the City*, 1998–2004
Jeff Bridges—*The Big Lebowski*, 1998
Billy Crystal, *When Harry Met Sally*, 1989
Cameron Diaz in *Charlie’s Angels*, 2000
Samuel L. Jackson in *Shaft*, 2000
John Travolta—*Face Off*, 1997
Robert De Niro, *City by the Sea*, 2002
Ben Stiller as Derek in *Zoolander*, 2001
Michael Douglas, *The American President*, 1995
Craig Nelson as Bob Parr, Mr. Incredible in *The Incredibles*, 2004

Source: Macleod (2007)

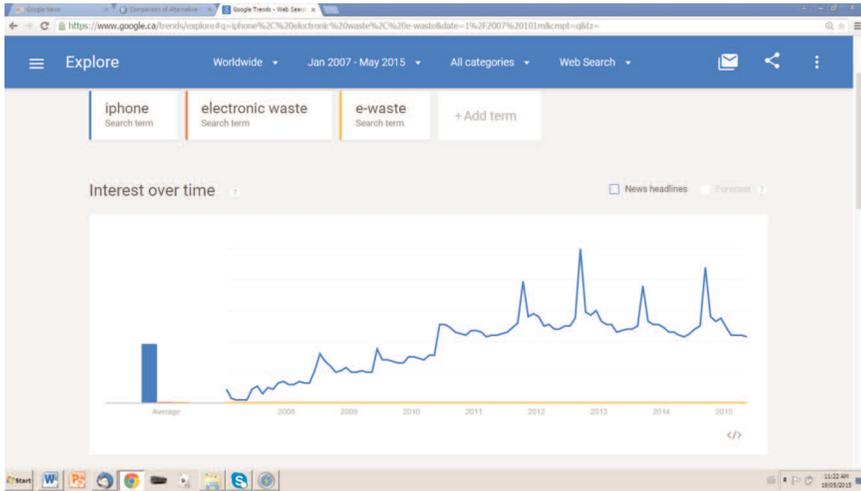
Appendix B

Keyword search results

| Keywords (and source) | Number of articles (Jan. 1, 2007– Dec. 31, 2007) | Number of articles (July 1, 2014– July 1, 2015) | Percent change over time (for values +10) |
|--|---|--|--|
| "iPhone" (Newspapers—international) | 5,306 | 21,660 | +308 |
| "electronic waste" or "e-waste" (Newspapers—international) | 513 | 287 | -44 |
| "iPhone" (Newspapers—Canada) | 1,257 | 1,679 | +33 |
| "electronic waste" or "e-waste" (Newspapers—Canada) | 94 | 29 | -69 |
| "iPhone" (Broadcast news—U.S.) | 477 | 1,300 | +173 |
| "electronic waste" or "e-waste" (Broadcast news—U.S.) | 18 | 3 | -83 |
| "iPhone" (Broadcast news—Canada) | 15 | 27 | +80 |
| "electronic waste" or "e-waste" (Broadcast news—Canada) | 1 | 2 | N/A |
| "iPhone" AND "electronic waste" OR "e-waste" (Newspapers—international) | 4 | 6 | N/A |
| "iPhone" AND "electronic waste" OR "e-waste" (Newspapers—Canada) | 2 | 1 | N/A |
| "iPhone" AND "electronic waste" OR "e-waste" (Broadcast—U.S.) | 0 | 0 | N/A |
| "iPhone" AND "electronic waste" OR "e-waste" (Broadcast—Canada) | 1 | 0 | N/A |
| "phone" AND "electronic waste" OR "e-waste" (Newspapers—international) | 128 | 79 | -38 |
| "phone" AND "electronic waste" OR "e-waste" (Newspapers—Canada) | 10 | 5 | N/A |
| "phone" AND "electronic waste" OR "e-waste" (Broadcast news—U.S.) | 9 | 2 | N/A |
| "phone" AND "electronic waste" OR "e-waste" (Broadcast news—Canada) | 1 | 1 | N/A |

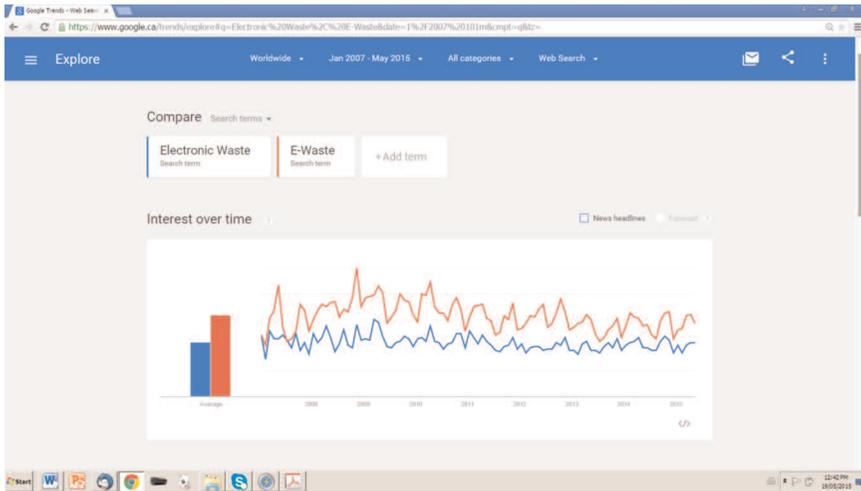
Appendix C

Google Trends for “iPhone,” “e-waste,” and “electronic waste”



Appendix D

Google Trends for “electronic waste” and “e-waste”



Appendix E

Google Trends for “iPhone” and “Blackberry”

