

GOING NATIVE: INVESTIGATING THE DRIVERS OF NATIVE ADVERTISING
EFFECTIVENESS

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ABSTRACT

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As the use of the Internet has evolved over the past few decades, digital advertising has become an increasingly important part of how firms reach their consumers. Since 1996, digital advertising spending has increased from \$30 million to over \$35 billion in 2019 (PwC & IAB, 2020). While digital advertising – as a whole – has become an omnipresent source of advertising, there have been recent shifts in the different types of digital ads that firms utilize. Perhaps most notable is the rise of native advertising – which is a new form of digital display advertising that has been popularized by major social networking sites such as Facebook, Twitter, and Snapchat. As a disguised form of advertising, much of the research on native advertising has centered around the nature of advertising disclosures. However, as publishers are increasingly adopting stricter disclosure standards, it is important to also explore how advertisers can effectively utilize native advertising. Thus, the goal of my dissertation is to examine how firms can better utilize this new form of digital advertising to make their advertising campaigns more effective.

For the first essay of my dissertation, I explore how native advertising effectiveness is influenced by the interplay between advertising content and the context in which it is presented. In the first study, I leverage a unique dataset from one of the largest programmatic buy-side agencies in the United States to examine how native ad placement (in-feed versus in-ad) interacts with different ad appeals (promotion-related versus solution-related) to influence click-through rates. Then for study two, I conduct a field experiment to explore how native ad placements affect consumers post-click behaviors. I find that while more disguised placements (in-feed) may

produce higher click-through rates, consumers that click on these more disguised ads will exhibit diminished post-click performance. However, I assess if these negative behaviors can be attenuated by developing congruent landing pages. As the literature has largely focused on the negative aspects of native advertising (Saenger & Song, 2019), this research provides timely and unique insight into how managers can better develop their native advertising campaigns.

The second essay of my dissertation focuses on how different sources of congruity affect native advertising effectiveness. While the concept of congruity has a long history in advertising research, native advertising is a particularly interesting context to study congruity. Because native ads are already designed to look congruent with the publisher's content, it is important to explore how other forms of congruity affect advertising effectiveness. Using data from an iconic retailer's native advertising campaigns, I test how these different sources of congruity affect objective measures of native advertising effectiveness. More specifically, I measure congruity between the publishing domain and the brand (i.e., contextual congruity), as well as congruity between the audience and the brand (i.e., targeting variables such as gender and interest category). Consistent with the banner advertising literature, the results suggest that incongruity can be beneficial for ads delivered in traditional advertising space. However, I find that for fully embedded native ads, presenting ads alongside similar editorial content improves click-through rates. Furthermore, I find that targeting can enhance the effectiveness of contextually congruent advertisements not only from a click-based perspective but enhances post-click engagement as well.

This dissertation is dedicated to my family – Mom, Dad, Arielle, Annabel, and Baxter.
Thank you for always believing in me.

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INTRODUCTION

As the use of the Internet has evolved over the past few decades, digital advertising has become an increasingly important part of how firms reach their consumers. Since 1996, digital advertising spending has increased from \$30 million to over \$35 billion in 2019 (PwC & IAB, 2020). While digital advertising – as a whole – has become an omnipresent source of advertising, there have been recent shifts in the different types of digital ads that firms utilize. Perhaps most notable is the rise of native advertising – which is a new form of digital display advertising that has been popularized by major social networking sites such as Facebook, Twitter, and Snapchat. Unlike traditional display ads (i.e., banner ads), which are designed to stand out from editorial content, native ads utilize creative assets from the publisher (i.e., fonts, colors) such that the ads appear to “blend in” with the natural flow of the website.

As a disguised form of advertising, much of the research on native advertising has centered around the nature of advertising disclosures. However, as publishers are increasingly adopting stricter disclosure standards, it is important to also explore how advertisers can effectively utilize native advertising. Thus, the goal of my dissertation is to examine how firms can better utilize this new form of digital advertising to make their advertising campaigns more effective. Specifically, the first essay of my dissertation focuses on the interplay between the advertising content and context in which the ad is delivered. Then for my second essay, I examine how different sources of congruity affect native advertising effectiveness. Prior to my essays, I provide a brief background of the research on digital advertising, with a particular focus on native advertising.

Research Background

Digital Advertising

Just three decades ago, the first clickable web ad was sold by Global Network Navigator in 1993 to a Silicon Valley law firm (Briggs & Hollis, 1997). Since then, technological advancements have improved and expanded Internet access such that it has become a ubiquitous presence in modern life. As a result, expenditures on digital advertising have increased exponentially, with quarterly spending on digital advertising increasing from \$30 million in 1996 to over \$35 billion in 2019 (PwC & IAB, 2020). The tremendous growth of the industry has changed how marketers develop and deploy their campaigns.

Back when digital advertising was in its early stages, firms often worked in close coordination with publishers to develop their advertising content. However, fast-forward to today where there are billions of people on the Internet at any given time. In this expanded advertising space, it has become rather inefficient to deploy advertising campaigns in such a manner. As a result, programmatic advertising – defined as the buying and selling of ad inventory through an automated bidding system – has become the leading method for buying, displaying, and optimizing advertising space (ANA, 2017). With programmatic advertising becoming the new norm, marketers are tasked with the challenge of deploying relevant advertising campaigns at scale. This is particularly true for non-search advertising – or display advertising – where 81.5% of revenues coming from programmatic in 2019, a 20.7% increase from the year prior (PwC & IAB, 2020).

Digital Display Advertising

While display advertising can come in many forms, it has primarily come in the form of banner ads (Zeff & Aronson, 1999). Banner ads offer advertisers flexibility regarding sizing,

placement, and animation. These ads are often considered to be the “ad for the ad” (Harvey, 1997, p. 12) because they direct audiences to their associated landing pages, which are often corporate, campaign, or ecommerce sites. Initial research on banner ads found that these ads can generate positive advertising evaluations (Briggs & Hollis, 1997) as well as build web traffic (Li, 1998), which attracted the attention of marketing practitioners and researchers alike.

Much of the research on banner ads – and display advertising in general – has focused on the obtrusiveness of the ads. However, many of the findings are contradictory. Some scholars have argued that more obtrusive ads are better, as large (versus small) banner ads have been shown to attract attention (Baltas, 2003) and enhance comprehension (Li & Bukovac, 1999). In contrast, others have found that smaller banners are just as effective as large ones (Dreze & Hussherr, 2003) and banner size does not have a significant impact on clicking behavior (Cho, 2003). Along similar lines, multiple studies have found that animated (versus static) banner ads generate better recall (Li & Bukovac, 1999; Dreze & Hussherr, 2003) and improve click-through rates (Chandon, Chtourou, & Fortin, 2003; Lothia, Donthu, & Hershberger, 2003; Robinson, Wysocka, & Hand, 2007), while others have argued that animated banners might be less effective due to their complexity (Baltas, 2003; Burke, Hornof, Nilsen, & Gormon, 2005). Taken together, these earlier studies largely conclude that more obtrusive banner ads are more effective at garnering attention, but it is unclear whether obtrusiveness differentially impacts clicking behaviors.

As the use of banner ads accelerated throughout the late 1990s and early 2000s, another research stream emerged with respect to the obtrusiveness of banner ads. Rather than focusing on how obtrusiveness affected ad performance, this stream of research focused on how it affected the individual’s browsing experience. Despite banner advertising being relatively new,

researchers found that Internet users exhibited “banner blindness” (Benway, 1998) – a phenomena in which users avoid looking at (Dreze & Hussherr, 2003) or paying attention to (Chatterjee, 2008) banner ads inserted on web pages. Drawing from the literature on ad avoidance, banner blindness seems to be directly related to the obtrusiveness of banner ads. While obtrusive executions may garner more attention, they disrupt the user’s browsing experience and make the webpage feel cluttered (Cho & Cheon, 2004).

The increased avoidance of banner ads in recent years has coincided with declining click-through rates (Wang, Xiong, & Yang, 2019) and subsequently raised concerns regarding the return on these marketing investments. As a result, an increasing number of media publishing platforms have pivoted away from banner ads, opting for a subtler form of display ads that have been termed native ads.

Native Advertising

Defining Native Advertising

Native advertising has grown to become among the largest and fastest growing areas of digital advertising. However, because native advertising has several different implementations of and evolving formats, it remains difficult to define. On a broad level, researchers have defined native advertising as a “form of disguised online display advertising wherein ad experience matches the format/function of user experience on the platform on which it is displayed” (Wang, Xiong, & Yang, 2019, p. 82). The Interactive Advertising Bureau (IAB) defines it as “paid ads that are so cohesive with the page content, assimilated into the design, and consistent with the platform behavior that the viewer feels the ads belong there” (IAB, 2019). The distinction between native ads and standard digital ads (e.g., banner ads) is the ability of native ads to follow the natural design, location, and ad behavior of the website in which it was placed.

The Growth of Native Advertising

Despite being a relatively new form of advertising, native advertising has grown at an exponential rate. In 2016, spending on native advertising was \$16.68 billion, and is expected to grow to \$52.75 billion by 2020 (eMarketer, 2019). Other industry forecasts suggest that digital display advertising growth will be driven almost exclusively by native advertising, as spending on other formats (i.e., banners, pop-ups) is expected to stagnate – if not decline (Business Insider, 2016). While social media has driven much of the growth in native advertising investments, non-social media native advertising spending more than doubled from 2016 to 2018 (Media Life Magazine, 2017). *The Atlantic*, *The New York Times*, and *Wall Street Journal* are just some of the major publishers that have shifted a large portion of their monetization efforts toward native advertising.

Forms of Native Advertising

The IAB has established four criteria to identify and evaluate different forms of native advertising (IAB, 2019). The first relates to design of the ad. To qualify as a native advertisement, the ad should match the visual design of the website it is delivered on. The second criterion is the location of the ad. While standard display ads can be delivered in a variety of locations around the webpage, native ads are evaluated as whether they are placed within the publisher's content feed or outside the content feed. The third relates to the behavior of the ad. Some native ads are designed to match the behavior of the surrounding content (i.e., linking to an on-site story page), while others introduce new behaviors (i.e., links to the advertiser's site when all other publisher content on the page remains on site). Finally, to be considered a native ad, the advertisement must contain a clear and prominent disclosure in accordance with FTC guidelines.

Within the domain of native advertising, there are three dominant types: native display ads, content recommendation ads, and branded – or native – content. Within the realm of native display ads, there are in-feed or in-content placements (referred to as “in-feed”) and in-ad placements. In-feed placements can appear on home pages, section fronts, within content on article pages, on product pages and social platforms. These ads are integrated into the layout and design (font, color scheme) of the surrounding content, and include disclosure language to identify the content as a paid advertisement. In-ad placements are similar to in-feed placements in the sense of design and disclosure language, but are presented in traditional banner ad slot, which does guarantee that the ads will be following the surrounding content exactly.

The second type of native advertising is content recommendation ads. Popularized by companies such as Taboola, Outbrain, and Yahoo Gemini, this type of ad is delivered outside of article content and will always link to a page off the site, which distinguishes it from native display ads. It is important to note that content recommendation ads are still considered native as they match the design of the publishing platform and include clear and prominent disclosures.

The third type of native advertising is branded content. While there are a variety of monikers for branded content – such as sponsored content, branded content is defined as “paid content from a brand that is published in the same format as full editorial on a publisher’s site” (IAB, 2019). For these types of ads, the advertiser pays the publishing platform to publish the advertiser’s owned content assets within the publisher’s site. The content is then rendered on a page that is similar to editorial content – with the exception of a clear and prominent disclosure noting that the article is a paid advertisement. This type of native advertising is often used in conjunction with native display ads to promote the content.

Research on Sponsored Content

While native display advertising research is rather nascent, there is a longer history of research on sponsored content. Unlike traditional forms of digital advertising (i.e., banner ads, pop-ups), which draw attention away from the editorial content of a webpage, sponsored content is designed to look – and read – like editorial content (Wojdyski B. , 2016). One of the first studies to examine sponsored content found that the organic appearance of sponsored content generated more positive evaluations than that of a similar banner ad (Becker-Olsen, 2003). Other research suggests that these positive evaluations are because sponsored content activates lower levels of skepticism and persuasion knowledge than banner ads (Tutaj & van Reijmersdal, 2012).

While the disguised nature of sponsored content appears to benefit advertisers and publishers alike, it has also raised concerns of the FTC with regards to how advertisers disclose these ads. The FTC is concerned that consumers might not be able to distinguish between editorial content and paid content. Highlighting this concern, a recent industry study found that users are more likely to identify sponsored content as an article rather than an advertisement (Contently, 2015). As a result, much of the research on sponsored content has focused on the nature of disclosures. In general, research indicates that consumers often do not pay attention to advertising or sponsorship disclosures (Boerman, Willemsen, & Van Der Aa, 2017; Wojdyski & Evans, 2016). To combat this, researchers have found that altering the positioning (Wojdyski & Evans, 2016) or design of disclosures (Wojdyski, et al., 2017) can help consumers recognize the commercial nature of the advertisement. In response to these concerns, a growing number of advertising platforms such as Taboola, Outbrain, and Bidtellect have aligned their disclosure requirements with the Federal Trade Commission's guidelines.¹

¹ https://www.ftc.gov/system/files/documents/public_statements/896923/151222deceptiveenforcement.pdf

Table 1: Literature Review of Native Display Advertising

Article	Focal Variable(s)	Mechanism(s)	Outcome(s)	Main Point
Aribarg & Schwartz 2019	Ad Type, Disclosure Prominence	Confusion, Visual Attention	Clicks, Brand Recognition	Compares in-feed native ads with traditional banner ads. When controlling for placement, banner ads garner more attention and brand recognition, but native ads generate more clicks.
Boerman et al. 2017	Disclosure Presence, Sponsorship Source	Persuasion Knowledge	eWOM	Disclosing the commercial nature of a sponsored post can activate conceptual persuasion knowledge. However, this effect is moderated by the source of the message.
Grigsby & Mellema 2020	Execution Style, Disclosure Presence, Brand Presence	Ad Recognition, Manipulative Intent	Attitude toward the Ad	Informational ads are more likely to be recognized than narrative style ads, even when disclosure labels and brand presence are prominently located. Lower ad recognition is associated with higher perceptions of manipulative intent.
Hayes et al. 2020	Disclosure Presence, Message Relevance, Sponsorship Source, Consumer-Brand Relationship Strength	Ad Recognition	Attitude toward the Ad, Attitude toward the brand, Purchase Intentions, Sharing Intentions	The authors find strong message relevance effects, but not for sponsorship disclosure. Consumer-brand relationship strength enhances evaluations and is stronger when authored by peers rather than brands or influencers.
Jung & Heo 2019	Persuasion Knowledge, Disclosure Explicitness, Ad Recognition	NA	Selling and Persuasive Intent, Attitude toward the Ad, Attitude toward the Brand, Sharing Intentions	Investigated how ad disclosure and ad recognition predict the effectiveness of native advertising, finding that evaluations were influenced by persuasion knowledge and ad recognition rather than disclosure explicitness.
Kim, Choi, & Kim 2019	Content Nativeness, Design Nativeness, Involvement	NA	Attitude toward the Ad, Attitude toward the Brand, Purchase Intentions	Developed a scale of advertising nativeness. Involvement moderates dimensions of nativeness in different ways, such that for high involvement brands, the effect of content nativeness is stronger, while the effect of design nativeness is weaker.
Kim, Yoon, & Yoon 2019	Ad Type, Ad Placement Type, Persuasion Knowledge	NA	Perceived Fit, Ad Credibility, Attitude toward the Ad, Attitude toward the Brand, Click Intentions	Native ads are evaluated more favorably when placed without a companion banner. When placed with a companion banner, native ads are far less effective, particularly for consumers with high persuasion knowledge.

Table 1 (cont'd)

Lee, Kim, & Ham 2016	Information Seeking Motivation, Socializing Motivation, Ad Skepticism, Persuasion Knowledge, Ad Nonintrusiveness, Ad Manipulativeness	NA	Attitude toward the Ad, Sharing Intentions	Results showed that information-seeking motivation and nonintrusiveness were positively related to attitudes and sharing intentions, while ad skepticism and persuasion knowledge were negatively associated.
Wang, Xiong, & Yang 2019	Position Rank, Gender, Age	NA	Click-Through Rate, Conversion Rate	Propose a post-click annoyance effect for native ads. Result suggests that as the rank of a native ad lowers, conversion rate drops more severely than click-through rate.
Youn & Kim 2019	Exposure to Native Advertising	Persuasion Knowledge, Ad Recognition	Attitude toward the Ad, Ad Avoidance	Utilized focus groups and in-depth interviews to develop a conceptual model for how Facebook users perceive native advertisements.

Similar to the literature related to sponsored content, much of the research on native display ads (see Table 1) has explored how disclosure characteristics influence advertising perceptions. Unlike sponsored content, where disclosures have a consistent impact on ad evaluations, the impact of disclosures appears to be more nuanced with native display ads. Multiple studies have found that content-related factors – such as execution style (Grigsby & Mellema, 2020) and message relevance (Hayes, Golan, Britt, & Applequist, 2020) – have a stronger influence on ad evaluations than disclosures. Other studies suggest that disclosures are more effective when the sponsorship source is done by someone other than the brand, such as celebrities (Boerman, Willemsen, & Van Der Aa, 2017) or peers (Hayes, Golan, Britt, & Applequist, 2020).

Researchers have also explored how the design of native display ads make them a suitable replacement for banner ads. Recent research has found that ads that are both congruent with the design and content of the webpage are associated with improved advertising evaluations

(Kim, Choi, & Kim, 2019). While banner ads are designed to draw attention away from editorial content, native display ads appear to benefit from their nonintrusive design (Lee, Kim, & Ham, 2016). Aribarg and Schwartz (2020) provide further evidence for this in finding that while in-feed native ads produce lower brand recognition than banner ads, they generate relatively higher click-through rates. Taken together, these studies suggest that native display ads benefit from their disguised nature.

Research Motivation

With an increasing number of publishers adopting stricter disclosure standards, it is crucial to understand other aspects of native advertising – specifically regarding how managers can make their native advertising more effective. This dissertation differs from prior research on three major fronts. First, most previous studies have focused on how publisher-controlled factors (i.e., disclosures) influence response to native advertising. As the importance of marketer-controlled factors has been studied extensively with other forms of digital advertising (Chtourou, Chandon, & Zollinger, 2002), there is both theoretical and practical rationale to study how marketer-controlled factors affect native advertising effectiveness. Second, while other studies have compared differences between native ad types and banner ads (Aribarg & Schwartz, 2020; Becker-Olsen, 2003; Tutaj & van Reijmersdal, 2012), I explore differences within native ad formats. Third, research on native advertising has been primarily limited to lab experiments with subjective outcomes – with a notable exception of Wang and colleagues (2019). In contrast, both of my essays leverage data collected from real-world, large scale native advertising campaigns.

Summary of Essay One

For the first essay of my dissertation, I explore how native advertising effectiveness is influenced by the interplay between advertising content and the context in which it is presented.

In the first study, I leverage a unique dataset from one of the largest programmatic agencies in the United States to examine how native ad placement (in-feed versus in-ad) interacts with different ad appeals (promotion-related versus solution-related) to influence click-through rates. Then for study two, I conduct a field experiment to explore how native ad placements affect consumers post-click behaviors. I find that while more disguised placements (in-feed) may produce higher click-through rates, consumers that click on these more disguised ads will exhibit diminished post-click performance. I then test whether these negative behaviors can be attenuated by developing congruent landing pages. As the literature has largely focused on the negative aspects of native advertising (Saenger & Song, 2019), this research provides timely and unique insight into how managers can better develop their native advertising campaigns.

Summary of Essay Two

The second essay of my dissertation focuses on how different sources of congruity affect native advertising effectiveness. While the concept of congruity has a long history in advertising research, native advertising is a particularly interesting context to study congruity. Because native ads are already designed to look congruent with the publisher's content, it is important to explore how other forms of congruity affect advertising effectiveness. Using data from an iconic retailer's native advertising campaigns, I test how these different sources of congruity affect objective measures of native advertising effectiveness. More specifically, I measure congruity between the publishing domain and the brand, as well as congruity between the audience and the brand (i.e., targeting variables such as gender and interest category). I then show how these differentially influence different stages of the digital customer journey (i.e., click-through rate and post-click engagement).

ESSAY ONE

NATIVE ADVERTISING EFFECTIVENESS: AN EXAMINATION OF THE INTERPLAYS BETWEEN CONTENT AND CONTEXT

Introduction

In just the past decade, the digital display advertising industry has undergone many changes. While obtrusive display ads – such as banner ads and pop-ups – dominated the display advertising landscape for many years, consumers became increasingly annoyed with these ads and learned to avoid them (Cho & Cheon, 2004). As a result of increased ad avoidance, publishers were forced to seek out new ways to monetize their digital content. An increasingly popular solution to this challenge has been native advertising (Matteo & Dal Zotto, 2015). Popularized by social platforms such as Facebook, Twitter, and Instagram, native advertising “takes the specific form and appearance of editorial content from the publisher” (Wojdyski & Evans, 2016, p. 157), thus offering a less intrusive way to reach consumers.

Initial research on native advertising suggests that native ads benefit from their inherent subtlety. As native ads are designed to blend in with surrounding editorial content, consumers find them to be less irritating than banner ads and are less likely to recognize these messages as advertising (Aribarg & Schwartz, 2020; Tutaj & van Reijmersdal, 2012). While this appears to benefit advertisers, it has also led the Federal Trade Commission (FTC) to raise concerns about how these ads are disclosed to consumers. In response, numerous studies have investigated how disclosure methods influence response to native display ads (Aribarg & Schwartz, 2020; Boerman, Willemsen, & Van Der Aa, 2017) and other forms of native advertising, such as sponsored content (Hyman, Franklyn, Yee, & Rahmati, 2017; van Reijmersdal, et al., 2016; Wojdyski & Evans, 2016). Although the findings of these studies provide further understanding concerning optimal disclosure practices, they provide little actionable insight for marketers since disclosures are controlled by the publishing platform and follow the rules of the FTC. Instead, marketers need to understand how to create and design effective native advertising messages.

To address this gap in knowledge, the present research explores how advertiser-controlled factors influence native advertising effectiveness. I focus on two key structural elements of native ads – ad format and ad content – examining how they influence consumer response through different stages of the digital consumer journey. In Study 1, I utilize a unique data set of native advertising campaigns to examine how advertiser-controlled factors influence click-based measures of effectiveness (e.g., click-through rate). Controlling for contextual factors, such as on which type of device the ad was viewed, I examine the interplay between different informational appeals (promotion- vs. solution-related) and native advertising placements (i.e., in-feed vs. in-ad). I propose that congruity between the ad appeal and ad placement can further enhance the effectiveness of ads.

Furthermore, while native ads are more likely to get clicks due to their resemblance to the publishers' editorial content (Aribarg & Schwartz, 2020), it is not clear what happens after consumers click on a native ad. Researchers have theorized that the disguised nature of native ads could have detrimental effects on post-click behaviors as consumers may not recognize the commercial nature of the ad until after they click on it (Wang, Xiong, & Yang, 2019). Consequently, for Study 2, I run a controlled field experiment to explore how consumers behave *after* they click on a native advertisement. I propose that more disguised ad placements will result in negative post-click behaviors, such that users directed from these placements will be more likely to (1) bounce from the landing page, (2) spend less time on site, and (3) view fewer pages than users directed from less disguised placements. However, I argue that these negative post-click behaviors can be attenuated by developing landing pages that are congruent with the ad placement.

Overall, this research addresses several key research priorities related to native advertising. First, our research is among the first to examine how advertiser-controlled factors – ad content and ad format – influence native advertising effectiveness across multiple stages of the digital consumer journey. As the literature has largely focused on the downsides of native advertising rather than exploring how brands can effectively utilize native advertising (Saenger & Song, 2019), this research will provide unique insight for both academics and advertisers.

Second, while multiple studies have explored how different appeals influence consumer response to digital advertising, these studies have often been explored in other digital advertising contexts, such as banner ads (Chtourou, Chandon, & Zollinger, 2002; Hupfer & Grey, 2005; Xie, Donthu, Lohtia, & Osmonbekov, 2004) and video ads (Tellis, MacInnis, Tirunailai, & Zhang, 2019). Given the disguised nature of native ads, consumers are likely to respond differently to these ads (Wang, Xiong, & Yang, 2019). Thus, it is unclear if insights from studies on banner ads can be generalized to this context.

Finally, previous native advertising research has primarily focused on subjective evaluation or click-based measures of effectiveness (Aribarg & Schwartz, 2020). By exploring objective measures of performance across multiple stages of the conversion funnel, this research enables managers to better to optimize the performance of their native advertising campaigns.

Conceptual Development

It is crucial to understand why native advertising appears to benefit from blending into the publisher's editorial content. While not widely tested in this domain (Kim, Choi, & Kim, 2019), the importance of ad-to-context congruity has a long history in traditional advertising media (Norris & Colman, 1993). A common theme underlying native advertising literature is that the ads are congruent with the design of the publisher's website. More relevant to this

research, scholars have examined the effects of this type of congruity for a variety of digital advertising formats, including e-magazines (Zanjani, Diamond, & Chan, 2011), banner ads (Newman, Stem, & Sprott, 2004), and video games (Lewis & Porter, 2010).

A common theoretical perspective underlying these studies is schema theory (Anderson, 1978), or the theory that all knowledge is organized into units. When presented with new stimuli, consumers will retrieve memories and organize this new information into existing schemata (Kim, Choi, & Kim, 2019). By seamlessly integrating advertising content into the publisher's content, native ads become more accessible, which not only facilitates processing (Stoltman, 1991) but also allows it to be evaluated more favorably (Mandler, 1982). While this explains how native ads benefit from their design characteristics, Kim and colleagues (2019) argue that the content of the ad should also be congruent with the surrounding content. As prior research suggests that consumers are more interested in consuming editorial content rather than commercial content (Cameron, 1994), traditional advertising tactics may not be as effective in a native advertising context.

Building from this theoretical baseline, I extend research in this area by providing a more holistic consideration of congruity in a native advertising context. In Study 1, I use this theoretical lens to develop hypotheses from a click-based perspective of effectiveness. Consistent with schema theory, I expect that more disguised ads will be more consistent with consumers' browsing desires and increasing their likelihood of clicking on the ad (H_{1A}). If the consumer decides to process the ad (i.e., read the ad), they will then evaluate the ad content and assess whether it is consistent with their browsing goals, which could depend on how the ad was presented (H_{1B}).

Then, for Study 2, I examine post-click behaviors. Research has suggested that native ads may result in diminished post-click performance because of their disguised nature (Campbell & Evans, 2018; Wang, Xiong, & Yang, 2019; Wojdyski & Evans, 2016). They argue that while native ads may be less interruptive, it increases the likelihood that the consumer will feel “tricked” upon clicking on a native advertisement. In other words, disguised ads create an expectation that the consumer will be directed to editorial content. Upon seeing the advertiser’s landing page, the consumer is suddenly aware that the link they clicked on is not congruent with their browsing desires (H_{2A}). However, I propose that congruity between the landing page content and ad format can attenuate these adverse reactions (H_{2B}). In the following sections, I formally develop our hypotheses, then sequentially test the predictions across two studies.

Hypothesis Development

The impact of advertising placement on click-through rate.

For native advertising campaigns, advertisers often serve their ads in one of two formats: in-ad and in-feed. The primary distinction between these native ad formats is the areas of the webpage in which they are placed. While in-feed placements are shown in the publisher’s feed within the editorial content, in-ad placements are present in traditional banner ad slots (IAB, 2019). In comparing these native display ad formats to banner ads (see Figure 1), one can see how native ads are designed to match the form and function of the publisher’s content, while banner ads are developed independently.

Figure 1: Examples of Native Ads

CNN BUSINESS Markets Tech Media Success Perspectives Videos

LIVE TV Edition

How to find yield in a low-rate world

Nearly all British Airways flights canceled as pilots go on strike

JPMorgan is tracking how Trump's tweets move markets

Content by LendingTree
Refinance rates at 2.75% APR (15 yr). Do you qualify?

Native In-Feed

Saudi Arabia fires its oil minister for the second time in 3 years

THE C-SUITE



Here's how 35 executives say they balance family and work

How companies decide who replaces the CEO

4 of the biggest mistakes a CEO can make

Up to half of exiting CEOs don't quit. They get fired

When your job is to teach corporations to do the right thing

PIZZA WARS



Pizza Hut is making a comeback. Its NFL deal is one reason why

How pizza chains use tech to battle for customers

Papa John's names new CEO

Domino's squeezed by delivery competition

Pizza Hut brings back its retro logo

BEYOND EARTH



How NASA's Apollo program kicked off Silicon Valley's tech revolution

Jeff Bezos just sold \$1.8 billion worth of Amazon stock. Here's why

Bill Nye's experimental spacecraft that sails on sunlight declares mission success

Sony's marching Starship prototype lifts off

BUSINESS EVOLVED



Why robots will soon be picking soft fruits and salad

These smart shorts tell you how to improve your workout

Instagram is changing the way people buy things

The 'living laboratory': Inside a neighborhood of smart homes

Traditional Banner Ad



"MICHIGAN IS A PLACE WHERE YOU CAN GROW, BE CREATIVE & LIVE YOUR BEST LIFE."

LEARN MORE

MICHIGAN. PURE OPPORTUNITY.

Advertisement

YOUR BEST RATES

Mortgage	Personal Loans	Credit Cards
Loan Type	Rate	APR
30-yr fixed	3.25%	3.25%
15-yr fixed	2.75%	2.75%
5/1 ARM	3.25%	3.894%
Loan Amount	APR	Payment
\$225,000 (5/1 ARM)	3.894%	\$979.22/mo
\$350,000 (5/1 ARM)	4.748%	\$1670.96/mo

Get Personalized Rates

lendingtree NMLS#1136 Terms & Conditions Apply

Native In-Ad

While both in-feed and in-ad placements are designed to match the style of the publishing website, there are important nuances in the location and structure of these ads that can influence consumer reactions. Prior research in digital advertising suggests that negative experiences with

banner ads can result in a negative predisposition towards content in traditional ad space (Cho & Cheon, 2004). Over time, consumers learn to avoid areas of websites that display banner ads (Lapa, 2007), developing what is popularly referred to as “banner blindness” (Dreze & Hussherr, 2003; Chatterjee, 2008). As in-ad placements are located in traditional ad space, the ad avoidance literature suggests that despite matching the form and function of the publisher’s site, consumers may be negatively predisposed to the space the ad is placed in (i.e., ignore the information in the ad space), and as a result be less inclined to click on it. Conversely, in-feed placements are fully integrated with the publisher’s editorial content, and thus more congruent with the schema. As the publisher’s feed is not a traditional ad space, I do not expect that consumers will consciously or subconsciously avoid processing content in this area. Taken together, I hypothesize the following:

H_{1A}: In-feed placements will experience higher click-through rates than in-ad native placements.

Moderating effect of congruity between the advertising content and ad placement on click-through rate.

In addition to determining where ads will be served, marketing managers must also calibrate the creative appeals to ensure they best activate consumers. While managers have a variety of appeals that they can integrate into their messages, perhaps most common among them are informational appeals (Abernethy & Franke, 1996). Informational appeals highlight product functions and the value proposition and can be operationalized in many ways (Xiang, Zhang, Tao, Wang, & Ma, 2019). In this research, I explore two distinct types of informational appeals: promotion- and solution-related appeals. These appeals were chosen as they are among the most commonly deployed creative strategies in native advertising. In situations where the marketer’s

objective is to accelerate purchasing, they may choose to use promotion-related appeals. I define promotion-related appeals as messages mentioning some form of discount, coupon, or sales event. Conversely, solution-related appeals focus on a problem that the product or service can solve for the consumer rather than directly promoting the specific attributes of a product or service.

While promotion- and solution-related appeals both convey information, they do so in different ways. Specifically, promotion-related content is inherently commercial and conveys selling intent (Folkes, 1988). Unlike promotion-related appeals, solution-related appeals do not directly call attention to the brand or a specific product and may appear more neutral with respect to selling intent. Given the stark differences in these two appeals, they could be processed differently by consumers depending on their browsing goals. In the context of users browsing editorial content on a publisher's site, I posit that consumers will be focused on the consumption of editorial content. Thus, consistent with schema theory (Mandler 1982), I anticipate that when consumers are viewing the core editorial content of a page, they do not expect to be exposed to ads. Appeals that are not explicitly commercial should be more consistent with expectations. Thus, I expect solution-related content to be even more effective when shown in-feed due to congruity between content and context, while promotion-related content should be even less effective if presented in-feed (see Table 2).

Table 2: Theoretical Justification for Congruity Hypothesis

Appeal Type	Native Ad Placement	
	In-Feed	In-Ad
Solution-Related	Advertising schema less likely to be activated by placement and intrinsic persuasive tactic is consistent with non-advertising schema. Congruent	Advertising schema more likely to be activated by placement, but intrinsic persuasive tactic is inconsistent with schema. Incongruent
Promotion-Related	Advertising schema less likely to be activated by placement, but extrinsic persuasive tactic is inconsistent with schema. Incongruent	Advertising schema more likely to be activated by placement and extrinsic persuasive tactic is consistent with advertising schema. Congruent

Similarly, consumers have grown accustomed to advertising spaces on websites expect to see banner ads promoting products (Lapa, 2007). In these areas of the website, promotion-related appeals are more likely to be consistent with expectations and should experience greater performance relative to solution-related appeals as they will be consistent with consumer expectations. These core effects are consistent with prior research on banner ads that demonstrate product- and promotion-related content will be more effective when shown in traditional ad space (Chtourou, Chandon, & Zollinger, 2002; Hupfer & Grey, 2005; Xie, Donthu, Lohtia, & Osmonbekov, 2004). This hypothesis is formally stated below.

H_{1B}: Congruity between advertising appeals and ad placement will lead to higher click-through rates to the extent that click-through rate is higher when promotion-related content is present in-ad, and when solution-related content is presented in-feed.

The impact of ad placement on post-click effectiveness.

Extending discussions of congruity from the first study, I argue that customers develop summary judgment after acting (i.e., clicking an ad) and assessing the extent to which the

outcome (i.e., the content they are exposed to) is consistent with their desires (Spreng and Olshavsky 1993). These effects are consistent with recent research on positional effects in native advertising. Specifically, Wang and colleagues (2019) demonstrate that consumers are “less likely to be annoyed by native ads *before* clicking on them (because of the ads’ disguised nature), but they may be annoyed *after* realizing they have been ‘tricked’” (Wang, Xiong, and Yang 2019, p. 85).

This core sequence of effects essentially suggests that when consumers are clicking on native ads that are served in-feed, they expect that they will be consuming editorial rather than commercial content. When consumers realize that they are being re-directed to a third-party site of an advertiser, the advertorial content that they see upon the click is less congruent with their desires. Alternatively, incongruity should not be as severe for in-ad placements, because consumers anticipate links in this area of a website to include advertorial content (Lapa 2007). When consumers click on the native ads served as in-ad units, it indicates an interest in learning more about the product, which is more congruent with the desired outcomes of the click. Therefore, I expect differential effects of native ad location on post-click behaviors:

H_{2A}: Ad location will influence advertising effectiveness such that users directed from in-feed placements will exhibit a relatively higher bounce rate than users directed from in-ad placements.

Moderating effect of congruity between landing page content and ad format.

While I expect the redirection to a third-party website to affect consumers’ initial reactions, I argue that the content of the landing page also plays a vital role in determining the consumer’s ultimate decision to digest the advertiser’s content (or not). As a result, advertisers should align the content of the landing page with consumers’ expectations. To this end, Goyal

and colleagues (2018) investigated how landing page content influenced consumer attitudes, finding that consumers who click on native ads are expecting more editorial content than pure advertising content. If in-feed ads are directed to a branded landing page with lower selling intent and more informational content, this experience will be more congruent with consumers' desires from the clicking action and should be associated with better post-click measures relative to a branded landing page with higher selling content. Alternatively, when native ads are presented in traditional ad space (in-ad placement), consumers are more likely to expect to be directed to commercial content. Thus, consumers will exhibit more positive post-click behaviors when in-ad advertisements direct them to landing pages that have higher selling content. This hypothesis is formally stated below.

H_{2B}: Congruity between the landing page content and native ad location will influence campaign effectiveness such that the negative effect of in-feed placements will be attenuated (strengthened) when directed to low (high) selling intent landing pages.

Overview of Studies

To test our hypotheses, I conduct two studies. Our first study utilizes data from one of the largest programmatic native advertising agencies in the United States to test our hypotheses related to click-based measures of effectiveness. Then for our second study, I conduct a field experiment with a regional fitness center to test our remaining hypotheses.

Study One: Assessing the Drivers of Click-Based Effectiveness

To test our hypotheses related to click-based measures of effectiveness, I partnered with one of the largest programmatic native advertising agencies in the United States. It should be noted that this firm conforms to the FTC's guidelines on native advertising disclosures. As the

disclosure characteristics would be consistent across brands and ads, I do not anticipate that this would bias our results.

Sample Frame

Within their portfolio of clients' brands, I sought to identify brands that met a few key criteria for inclusion in our study. First, I targeted well-known consumer brands that are experienced in digital marketing to increase the likelihood of robust and calibrated digital campaigns, which would provide a conservative test of the calibration of marketers to congruity effects. Second, I sought firms that regularly ran digital advertisements with both promotion- and solution-focused appeals. Based on these criteria, I identified two brands for deeper investigation. The first brand is an apparel brand that designs and sells shoes, clothing, and accessories for men and women and the second is a retailer that specializes in a subset of major consumer packaged goods categories. For each brand, I reviewed their existing creative efforts and identified a subset of two promotion-related ad copies and two solution-related ad copies, for a total of 8 unique ad copies.

After identifying the sample frame, I captured each advertisement's title, description, image, targeted audience, and other information using the firm's analytics platform. This provided me with a unique "campaign scenario" for each observation in our data set. Consistent with Wang, Xiong, and Yang (2019, p. 88), a campaign scenario (CS) "means a particular native ad viewed by a particular type of viewer under a particular circumstance." More specifically, I recorded information about the ads including where it was served (in-feed versus in-ad), the week they were served, the viewing device, as well bidding information. Then for each CS (i.e., for a native ad served on publisher p , to users of device type d , with a placement of f , during

week t), I was provided the total number of impressions, clicks, placement cost, and number of bids by the advertiser.

Descriptive Statistics

Table 3: Descriptive Statistics

Advertisement	Ad Placement		Cost*	Impressions	CTR	Campaign Length**	Ad Appeal		
	% In-Feed	% In-Ad					Promotion	Solution	t-value
Apparel Brand									
Promotion Ad #1	64.8	35.2	\$6,349	4,374,040	0.054%	9	5.63	3.72	5.40
Promotion Ad #2	63.3	36.7	\$9,814	5,239,704	0.069%	8	5.88	3.49	5.39
Solution Ad #1	53.8	46.2	\$14,103	13,261,909	0.034%	9	2.30	4.58	-5.05
Solution Ad #2	49.1	50.9	\$19,809	18,642,925	0.045%	11	1.98	5.25	-9.98
Specialty Retailer									
Promotion Ad #1	43.5	56.5	\$32,231	22,113,713	0.041%	1	5.83	2.97	7.78
Promotion Ad #2	40.9	59.1	\$109,290	47,301,617	0.036%	4	5.87	3.28	6.96
Solution Ad #1	42.1	57.9	\$6,528	1,923,103	0.321%	6	1.60	4.35	-8.99
Solution Ad #2	43.9	56.1	\$7,232	2,186,486	0.315%	6	2.27	3.70	-4.34

* This represents the amount paid to publishers to serve the ads rather than the amount paid by the advertiser.

** Number of weeks the campaign was active.

The descriptive statistics for each advertisement are shown in Table 3. It is important to note the placement statistics for the various advertisements in the Table as the placements for both the solution- and promotion- focused ads are relatively consistent, suggesting that advertisers may not be expecting congruity effects as those proposed in H_{1B} . If H_{1B} is confirmed in subsequent analyses, these baseline descriptive statistics suggest that on average 51.7% of ads might be being served in sub-optimal placements and for one of the ads in our sample, this sub-optimal rate could be as high as 64.8%.

Coding Advertising Content

To validate differences in the types of appeals being used across the advertisements, I relied on human coders to classify the extent to which ad content exhibited a promotion- or solution-related appeal. Specifically, I recruited 318 coders on Mechanical Turk to code a single advertisement for an average of roughly 20 coders per advertisement. Coders were blind to our

hypotheses and were asked to only rate one advertisement making the ratings a between-subjects exercise, thus limiting learning effects. Upon receiving detailed coding instructions, the coders were shown an ad similar to how it would be displayed on a website – with the image, a bolded headline above the description text, and disclosure of the advertising brand. The coders then responded to a three-item scale for both promotion- and solution-related appeals. Interrater reliability was high on both dimensions ($ICC_{\text{Solution}}: 0.86$; $ICC_{\text{Promotion}}: 0.99$) and mean differences indicated supported for the manipulated nature of the ads (see final two columns in Table 3).

Given that the coding confirmed that the selected ads are effective manipulations of promotion- versus solution-focused advertising appeals, I created a difference score variable to test our second hypothesis. The variable was calculated by taking the score of the solution-focused variable subtracted by the score of the promotion-focused variable. Thus, positive values indicate that the ad is perceived as more solution-focused and negative values indicate that the ad is perceived as more promotion-focused. As a robustness check, I also later re-estimated the model based on a binary operationalization by creating a dummy code for each advertisement where 1 = solution-focused and 0 = promotion-focused.

Identification Strategy

Similar to Wang, Xiong, and Yang (2019), the data used in this study is unique relative to most prior studies that have examined the performance of keyword-based advertising based on aggregated performance data that is typically visible to advertisers. Specifically, our data is sourced directly from the bidding platform responsible for the placement of the advertisements, so our campaign-level data offers precise measurement of cost, competition, and performance for

each campaign on each domain in the sample. As a result, the data provided is not hindered by measurement error associated with aggregated models of digital marketing effectiveness.

In addition, I leverage data from the bidding platform to directly control for potential alternative explanations in a manner consistent with the robustness checks in Wang, Xiong, and Yang (2019). Specifically, rather than making an indirect correction for potential bias from missing covariates, I sought to directly control for their influence. In this pursuit, I reviewed recent articles on digital marketing strategy to identify a range of variables that could potentially influence click-through-rate in an effort to identify suitable measures to directly control for these effects.

Table 4: Covariates to Address Endogeneity Concerns

Variable	Potential Confound	Empirical Control
Advertiser Cost	Ad position can be impacted by the cost of ad placement.	Control for the cost of each ad placement
Competitive Intensity	Ad performance may vary based on the number of competitors bidding for the same ad position	Control for the total number of bids associated with each campaign
Targeting	Differences in targeting across campaigns can impact CTR.	Control for the different types of targeting in the model.
Advertiser Effects	Certain brands may be savvier with digital marketing expenditures or experience differential benefits from ad position.	Brand fixed effects
Temporal Effects	The time of year (e.g., holiday) might affect CTR.	Week fixed effects
Device	CTR might be different for consumers on mobile devices.	Device type controls

This review resulted in the identification of six variables that could confound our results including advertiser cost, competitive intensity, targeting, advertiser experience, temporal effects, and consumer device. Table 4 reviews each of these potential sources of omitted variable bias, relevant citations discussing the variable, the potential confound, and our empirical solution. This comprehensive set of covariates directly addresses common sources of omitted

variable bias, further reducing the likelihood of endogeneity significantly impacting the interpretation of the results.

Cost. I control for the cost of the placements, which is the amount paid to the publisher for a given native ad campaign scenario. Upon initializing a campaign with a particular budget and bidding strategy, the firm then automatically bids on ad placements across the universe of white-listed publishers. The cost variable captures the aggregated cost to each publisher for a given campaign.

Competitive Intensity. In addition to the total cost of a campaign, it is important to control for competition. To assess how intense competition was for a set of ad placements, I control for the total number of bids required for a campaign to win its native ad placements.

Targeting. Given the sophistication of digital marketing, most campaigns feature some element of targeting (Rutz and Watson 2019). In our data, all campaigns included keyword targeting and a select set of campaigns were supplemented with contextual targeting. I control for the supplemental targeting efforts in the models too. It is important to note that these targeting efforts may impact the overall CTR, but they are unlikely to impact the relative effects across ad placement and ad placement x ad appeal congruity, but I include a dummy variable to capture these targeting efforts to be conservative.

Advertiser Characteristics. I use brand fixed effects to control for the possibility that brand perceptions influence attention to the advertisement. Moreover, I examine the results individually for each brand in the robustness checks.

Timing. To control for the possibility that advertisements released at different times of the year receive different amounts of attention, I created controls for the week of the year as the campaigns were run. To operationalize this, I include weekly fixed effects.

Device Type. To control for the possibility that advertisements received on different devices received different amounts of attention, I created dummy variables for the device the ad was viewed on. More specifically, I created two dummy variables indicating whether the ad was viewed on a mobile or tablet device (desktop is the reference variable).

Model-Free Evidence

Before discussing the results of our formal model tests, I first provide model-free evidence for the focal variables in our dataset. Across all observations in our dataset, the average click-through rate was 0.050%. Consistent with our theorizing for H₁, click-through rates were higher for in-feed placements (0.064%) than in-ad placements (0.043%). An initial examination of H₂ also signals support for congruity effects. Specifically, I find that solution-related ads perform better when served in-feed (0.085% versus 0.059% when served in-ad). Despite this relative performance benefit due to congruity in solution appeals and in-feed placement, our descriptive statistics demonstrated that only 47% of solution-based appeals were served in-feed, suggesting more than half of the ads are being served in sub-optimal environments. Integrating these placement statistics with the model free evidence, the results suggest that rather than enjoying a potential CTR of 0.085% if these ads were targeted exclusively in-feed, advertisers only experienced an average CTR of 0.071%, which is a relative reduction of 16.14% in CTR performance.

Model Specification

Given the unique nature of the dependent variable – clicks – traditional OLS regression might not be appropriate. Previous research in digital advertising has modeled click-through rates by using the count click-throughs as the dependent variable and accounting for exposure – i.e., impressions – on the right side of the equation (Ghose, Han, & Park, 2013; Stephen,

Sciandra, & Inman, 2015; Kireyev, Pauwels, & Gupta, 2016). Adopting a similar approach, our dependent variable is the number of click-throughs and the number of impressions included as the exposure variable. While one might be tempted to model the click-through rate λ_i as a Poisson process, researchers have argued that one should allow for heterogeneity in λ_i by assuming that λ_i comes from a gamma distribution (Danaher, 2007). The Poisson-gamma mixture (negative binomial) distribution that results is

$$\Pr(Y = y_i | u_i, \alpha) = \frac{\Gamma(y_i + \alpha^{-1})}{\Gamma(y_i + 1)\Gamma(\alpha^{-1})} \left(\frac{1}{1 + \alpha\mu_i} \right)^{\alpha^{-1}} \left(\frac{\alpha\mu_i}{1 + \alpha\mu_i} \right)^{y_i}$$

where

$$\mu_i = X_i\mu$$

$$\alpha = \frac{1}{v}$$

The parameter μ is the mean incidence rate of y per unit of exposure. X_i is used to denote the number of impressions for observation i . As the mean of y is determined by the number of impressions and a set of k regressor variables, I use the following expression to relate these quantities.

$$\mu_i = \exp(\ln(X_i) + \alpha_0 + \beta_1 \text{InFeed} + \beta_2 \text{Solution} + \beta_3 \text{Solution} \times \text{InFeed} + \gamma\delta + u_d)$$

In estimating the rate ratio (μ_i), α_0 refers to the global intercept. *InFeed* is a dummy variable indicating whether the ad is an in-feed placement. *Solution* is a variable indicating the degree solution-focus for the ad. I capture the moderating effect of ad placement on ad appeal through the interaction terms with *Solution* $\times$ *InFeed* variable. δ is a vector of control variables mentioned previously. Finally, given that advertising response could be influenced by unobserved factors related to the publisher, I allow α_0 to vary by estimating random intercept the publishing domain (u_d).

Results

I present the results of our analysis in Table 5. Given the contingent nature of the congruity effects proposed in the first study, I first estimated an equation for the main effects (Model 1). Then, to explore our interactions, I present our full model (Model 2).

Table 5: Parameter Estimates for Click-Through Rate Model

	Main Effects		Full Model	
	Estimate	Z-Value	Estimate	Z-Value
<i>Focal Variables</i>				
Solution	-0.04***	-7.85	-0.06***	-7.93
In-Feed	0.38***	20.64	0.37***	20.29
In-Feed x Solution			0.02***	3.24
<i>Other Parameters</i>				
Intercept	-8.90***	-104.87	-8.93***	-104.54
Mobile	1.19***	34.95	1.19***	34.89
Tablet	1.11***	46.34	1.11***	46.20
Placement Cost	0.00***	2.81	0.00**	2.52
Brand B	0.32***	6.46	0.33***	6.65
Contextual Targeting	-0.50***	-15.90	-0.49***	-15.54
ln(Bids)	0.03***	4.37	0.03***	4.35
Week FE	Included		Included	
Domain RE	Included		Included	
<i>Model Fit Statistics</i>				
AIC	92,982.90		92,974.40	
BIC	93,292.40		93,294.50	
logLik	-46,461.50		-46,456.20	

N = 194,261; Domains = 4,827

Effects of ad location. For H_{1A} , I predicted that in-feed units would be more effective in generating clicks than in-ad units. As the coefficient for in-feed was positive and significant in Model 1 (0.377, t : 20.64, $p < .001$), I find support for H_{1A} . Thus, I conclude that when holding other variables constant, in-feed placements are more efficient in generating clicks than ads served in traditional ad space (i.e., in-feed placements require fewer impressions to generate the same number of clicks).

Congruity between ad content and ad location. For H_{1B}, I predicted that ad content would interact with ad location to the extent that inherently commercial messages will be more effective when they are served in-ad while solution-related appeals would be more effective in-feed.

Concerning the interaction between ad content and ad location (Model 2), the results are consistent with our predictions as solution-focused appeals yield relatively higher click-through rates when served in-feed (0.022, t : 3.24, $p < .001$). Thus, I find support for H_{1B}.

Robustness Checks

Variable Operationalization. To ensure that our results were not an artifact of the measurement of our variables, I also ran additional models using a binary operationalization of the appeal used in the advertisement. As mentioned previously, this operationalization assigned solution-related ads a value of 1 and promotion-related ads a value of 0. The parameter estimates for this operationalization can be found in Table 6. As the results indicate, the parameter estimates for our hypothesized relationships do not change in sign or significance. Thus, I am confident that our results do not stem from the operationalization of our appeal.

Table 6: Parameter Estimates for Click-Through Rate Using A Binary Operationalization

	Main Effects		Full Model	
	Estimate	Z-Value	Estimate	Z-Value
Focal Variables				
Solution	-0.23***	-8.50	-0.31***	-8.39
In-Feed	0.37***	20.40	0.31***	11.99
In-Feed x Solution			0.11***	3.08
Other Parameters				
Intercept	-8.79***	-105.73	-8.78***	-105.43
Mobile	1.19***	34.94	1.19***	34.88
Tablet	1.07***	48.20	1.10***	46.17
Placement Cost	0.00***	2.78	0.00**	2.50
Brand B	0.30***	6.18	0.31***	6.35
Contextual Targeting	-0.50***	-15.75	-0.49***	-15.37
Ln(Bids)	0.03***	4.35	0.02***	4.32
Week FE	Included		Included	
Domain RE	Included		Included	
Model Fit Statistics				
AIC	92,972.50		92,965.00	
BIC	93,282.00		93,284.80	
logLik	-46,456.30		-46,451.50	

N = 194,261; Domains = 4,827

Omitted Variables. I also considered that other variables could potentially influence our results. In particular, the quality of the publisher's traffic could undoubtedly influence click-through rate. To control for the possibility that advertisements displayed on different domains receive different amounts of attention, I created controls for domain traffic quality. To operationalize domain traffic quality, I used a variable provided by the native advertising agency. The firm uses this variable to categorize domains into different tiers – with the highest-quality publishers in the first tier and the lowest-quality publishers in the lowest tier. Examples of publishers in the various supply tiers can be found in the appendix – with domains in the first tier representing popular websites (e.g., msn.com, cnn.com, rollingstone.com) while those in the lowest tier represent less popular or niche websites (e.g., bonvoyaged.com, lawyersfavorite.com,

1v1.lol). In testing our model, I estimate fixed effects for each tier of publisher quality. After including the domain quality fixed effects in our model (Table 7), I find that our results are consistent with our other results. Thus, I can rule out domain quality as an alternative explanation for our findings.

Table 7: Parameter Estimates with Domain Quality Controls

	Main Effects		Full Model	
	Estimate	Z-Value	Estimate	Z-Value
<i>Focal Variables</i>				
Solution	-0.04***	-7.92	-0.06***	-8.31
In-Feed	0.36***	19.69	0.36***	19.31
In-Feed x Solution			0.03***	3.73
<i>Other Parameters</i>				
Intercept	-8.81***	-53.99	-8.83***	-54.09
Mobile	1.21***	34.12	1.21***	34.02
Tablet	1.11***	45.91	1.11***	45.72
Placement Cost	0.00**	2.96	0.00**	2.63
Brand B	0.28***	5.40	0.30***	5.67
Contextual Targeting	-0.49***	-15.56	-0.48***	-15.13
ln(Bids)	0.02***	3.92	0.02***	3.87
Domain Quality FE	Included		Included	
Week FE	Included		Included	
Domain RE	Included		Included	
<i>Model Fit Statistics</i>				
AIC	87,572.80		87,560.80	
BIC	87,918.80		87,917.00	
logLik	-43,752.40		-43,745.40	

N = 194,261; Domains = 4,827

Discussion

Given the proliferation of native advertising across digital publishing platforms, alongside increasing consumption of digital content among consumers, a better understanding of the increased use of native advertising is needed. As an initial step in addressing this need, our analysis sheds light on how brands can design more effective native advertising campaigns.

Contributing to the debate on whether in-feed native ads are the premier native ad placement, our results demonstrate that in-feed ads are associated with higher click-through rates. More specifically, our results suggest that *ceteris paribus*, in-feed placements are 38.5% more likely to be clicked than in-ad placements. This is a particularly impactful finding given that I explicitly control for the cost of the placement in estimating our model.

Our findings also reveal that click-through rates are driven by more than just native ad placement. The content of native advertisements is of similar importance. While promotion- and solution-related appeals are commonplace in all forms of advertising, I explicitly test their influence in a native advertising context. I find that explicitly commercial content (e.g., promotion-related content) tend to be more effective when served in traditional ad space (in-ad), while solution-related appeals are more effective when served in-feed. Thus, managers should be conscientious of coordinating content with the native ad location because failing to do so could lead to suboptimal outcomes.

Study Two: Evaluating the Drivers of Post-Click Effectiveness

While the results of our first study provide a unique insight into what drives click-through rates for native ads, it is equally important to explore what happens *after* consumers click on these ads. Especially in the context of native advertising, recent research has suggested that the subtle nature of native ads could have a differential impact on different stages of the conversion funnel (Campbell and Evans 2018; Wang, Xiong, and Yang 2019; Wojdyski and Evans 2016). However, to date, there is only one published study that has empirically examined post-click behaviors in this context. In their study, Wang and colleagues (2019) found that while decreasing the rank position of in-feed native ads results in a marginal decrease in click-through rate, it has a much more pronounced effect on conversion rates. To contribute to further understanding of this

topic, this study examines how other advertiser-controlled factors – landing page content and ad location – influence consumers’ post-click behaviors.

Experimental Design

While lab experiments and surveys unveil novel psychological processes behind a phenomenon, empirical insights from field data are also valuable because they reveal the relative economic magnitude of the effects, and thus, can directly be applied to marketing decisions (Sudhir, Roy, & Cherian, 2016). To further explore the role of congruity in driving native advertising effectiveness, I conducted a field experiment with a fitness center that is based out of a large city in the Northeastern United States. To develop our manipulation for our experiment, I created two unique landing pages for our partner company: a congruent landing page and an incongruent landing page.² The congruent landing page was a blog that was developed with direct input from the fitness center’s head trainer and marketing team. The page provided informative content on how to change up a workout routine at the beginning and concluded with a call to action for readers to sign up for a free three-day pass at the fitness center. The incongruent landing page was simply a form to sign up for a free three-day pass at the fitness center. It is important to note that while the content of each landing page differed, the conversion goal of the campaign – to get readers to sign up for a free three-day pass – remained the same. Our landing page manipulation is presented visually in Figure 2.

² To ensure our results were not skewed by regular traffic, there were no other pages on the site that linked to the pages I created.

Figure 2: Landing Page Manipulation

Congruent Landing Page

Branding removed

DOWNLOAD YOUR 3-DAY PASS

MENU

10 TIPS TO BREAK OUT OF A FITNESS RUT

Every now and then everyone gets into a fitness rut. We don't feel like working out. Our routine seems too monotonous and we lose our training mojo. When we do manage to drag ourselves through the gym door, we just can't be bothered exerting ourselves.

A negative attitude will not benefit our fitness endeavors. When we're in a rut, we need to break out of it. Fortunately, there are many ways to do just that. Here are the top 10 ways to break out of a fitness rut.

1. Mix Up Your Rep Scheme

Changing up your rep scheme can completely reinvigorate your workout. If you are used to doing 3 sets of 8 reps per set, mix it and increase the reps to 15, even if it requires dropping the weight back. You can even have an extra high rep day where you challenge yourself to hit 100 reps in 3 sets on an exercise such as the barbell curl. Aim for 50 reps on the first set, 30 on the second and 20 on the third.

2. Vary Your Set Scheme

You are probably used to doing a straight set workout. This is where you perform a set, have a 30-90 second rest and then do your next set. Try changing it around with super sets, where you do two exercises back-to-back with absolutely no rest between them. They may be for the same body part or for opposing body parts.

You can also add variety by doing pre-exhaust sets. This is where you do an isolation exercise for a body part, such as pec flies, immediately followed by a compound movement, such as the bench press. Doing your sets in circuit fashion, where you go through one set of each exercise with minimal rest and then repeat through the circuit 3-4 times is another option to change things up.

3. Mix up Your Tempo

Incongruent Landing Page

Branding removed

ARE YOU READY TO EVOLVE
Get Exceptional Membership Amenities For An Affordable Price! Get Your Free Pass Today!

Free Pass

First Name
First

Last Name
Last

Email Address
first.last@gmail.com

Mobile Phone Number
123-456-7890

Club Most Interested In
☐ Framingham ☐ Cambridge

SUBMIT

Amenities You Want? Amenities You Get!

Everyday Evolve members enjoy more Health Club Amenities at Evolve, than every other gym in the area. Now you can take advantage of over 200 Group Exercise Classes each week, hundreds of the industry's Newest Cardio Machines, the best Certified Personal Trainers, our fully equipped Workout & Functional Training Areas, professionally staffed Child Care and convenient Multi-Club Access. Take your time and explore the list of amenities you want, below!

Evolve Fitness

Given that I was only interested in post-click effectiveness measures, I created the same ad copy for both landing pages (i.e., the image and headline were the same for each page). The headline read, “Stuck in a Routine? Here are 10 Tips to Break Out of a Fitness Rut!” Given the content of the headline, I anticipate that those who click on the ad will be expecting to visit a page that offers tips to switch up their workout routine (i.e., the congruent landing page). Based on our hypotheses, I expect that consumers directed from in-feed placements would exhibit relatively more negative post-click behaviors than those directed from in-ad placements. However, for consumers directed from in-feed placements to the congruent landing page, I expect these adverse effects of ad placement to be attenuated.

Pre-Test

To ensure that our manipulation went as intended, I conducted a pre-test using human judges that I recruited from Amazon’s Mechanical Turk. I primed respondents with a scenario telling them that they had just clicked on an ad that had the same headline and image to be used in the field experiment. After reading the message, I randomly directed respondents to one of the two landing pages (congruent versus incongruent). Once the respondent completed reading the landing page, I asked them to evaluate their experience through a short survey. As a manipulation check, respondents evaluated whether the landing page intended to sell them something versus provide useful information. Then, to ensure that differences in website quality were not present, I asked respondents questions related to the attitude towards the landing page, using the same scale as Sundar and Kalyanaraman (2004). Between subjects, the incongruent landing page scored significantly higher on selling intent (.419, t : 2.89, $p < .01$) and ad recognition (2.92, t : 8.53, $p < .01$) than the congruent landing page. Finally, I did not find any significant differences in how respondents felt about the quality of the web page design (-.038, t :

-.213, $p > .50$). As the results of the pre-test aligned with our expectations, I moved forward with our field experiment.

Research Method

I partnered with the same native advertising firm from Study 1 to create and run our native advertising campaigns. As mentioned previously, the campaigns all contained the same image and headline to ensure that there were minimal differences in the evaluation of the ad content before the click. However, I did manipulate whether the ad was in-feed or in-ad, resulting in a 2 (Ad Format: In-Feed versus In-Ad) $\times$ 2 (Landing Page Style: Congruent versus Incongruent) research design.

Given that the fitness center I were working with operated regionally, I targeted the Designated Marketing Area (DMA) of the metropolitan area in which all of their franchises were located. However, to ensure that the exposure for each of the conditions was as randomized as possible, I took several steps. First, I did not employ any further targeting for location (e.g., zip code), device, or users' interests. Second, I ask the native advertising firm to disable all of their creative optimization algorithms to ensure that each cell accumulated similar and randomized exposure. By disabling these features, it ensures a random assignment of the experimental conditions, which can effectively remove the risks of endogeneity bias when interpreting the primary effects of the field experiment (Rutz and Watson 2019). With these controls in place, I ran the experiment for three weeks.

Upon the completion of our experiment, I collected session-level data from the fitness center's website analytics platform. In total, there were 969 individual sessions generated from our field experiment. For each session, I measured bounces as whether the user left the page before interacting with the page. Furthermore, I will collect information related to (1) the user's

device (e.g., mobile, desktop, tablet), (2) the native ad placement they were exposed to (in-feed versus in-ad), (3) the domain they were directed from, (4) the date and time of the visit, and (5) the landing page they were directed to (high- versus low-selling intent). The values for device type, ad format, and landing page will all be converted into dummy variables. To control for possible temporal effects, I will also code for whether the visit occurred on a weekend or weekday.

Model Specification

Given that bounces represent a binary variable, I estimated the probability of a bounce using the following function:

$$P(B_i = 1) = f(1, infeed_i, lowintent_i, infeed \times lowintent_i, mobile_i, tablet_i, hour_i, weekday_i)$$

Where $P(B_i = 1)$ is the probability of user i bouncing from the webpage. 1 is a vector of ones (i.e., intercept). $infeed_i$ is a dummy variable indicating whether individual i was exposed to an in-feed placement. $lowintent_i$ is a dummy variable indicating whether the individual was directed to the low selling intent landing page. $infeed \times lowintent_i$ is the interaction term of $infeed_i$ and $lowintent_i$ variables. $mobile_i$ and $tablet_i$ are binary variables indicating whether the user was using a mobile or tablet device, respectively. $hour_i$ is a continuous variable corresponding to the time of day the click occurred. $weekday_i$ is a dummy variable indicating whether the ad was clicked on a weekday. The model for bounce rate used the entire sample ($N = 969$) and was estimated with binomial regression using a probit link function.

Results

Table 8 provides the parameter estimates for the bounce rate models. The first model presents the main effects, while the second presents the full model with interactions.

Table 8: Post-Click Model Results

	<i>Main Effects</i>	<i>Full Model</i>
<i>Focal Variables</i>		
In-Feed	.38*** (.08)	.35*** (.12)
Low Selling Intent	.03 (.08)	.01 (.12)
In-Feed × Low Selling Intent	- -	.05 (.17)
<i>Other Parameters</i>		
Mobile	.37*** (.10)	.37*** (.10)
Tablet	.33 (.19)	.33 (.19)
Hour	.01 (.01)	.01 (.01)
Weekday	-.23* (.10)	-.23* (.10)
<i>Model Fit Statistics</i>		
AIC	1,268.6	1,270.5

Effects of ad placement. In H_{2A}, I predicted that users directed from in-feed placements would exhibit relatively higher bounce rates. Consistent with our predictions, consumers directed from in-feed placements were more likely to bounce (.38, t : 4.54, $p < .01$). Thus, I find support for H_{2A}.

Effects of congruity between landing page content and ad location. For H_{2B}, I predicted that the low selling intent landing page would be relatively more effective for consumers that were directed there from in-feed ads. As the interaction term was not significant (.05, t : .30, $p > .20$), I do not find support for this hypothesis.

Discussion

The results of our field experiment extend the findings of the first study to explore post-click measures of native advertising effectiveness. Perhaps our most notable finding is the impact of ad placement on post-click behaviors. Consistent with the annoyance effect proposed by Wang and colleagues (2019), I find that – *ceteris paribus* – consumers directed from in-feed placements were 46.2% more likely to bounce from the landing page than those directed from in-ad placements. Thus, it appears that for in-feed placements, the improvement in click-through rate that I found in Study 1 could be offset by diminished post-click performance.

Consequently, managers should be aware that – even in the presence of prominent disclosures – consumers may not recognize in-feed placements as advertising messages, which negatively impact post-click behaviors.

Although I hypothesized that congruity between the landing page content and ad location would attenuate negative post-click behavior, I did not find support for this. Despite the editorial appearance of the low selling intent landing page, perhaps consumers were still annoyed that they had been redirected from the publisher's website. As this extends beyond the scope of this study, I encourage future research to further explore the role of landing page development in native advertising.

General Discussion

As consumers are becoming increasingly skeptical and dissatisfied with traditional banner ads, publishers and advertisers alike have shifted their efforts towards native advertising. Despite the growing interest and investment in native advertising, research has been limited to investigating the impact of native advertising disclosures rather than exploring the influence of advertiser-controlled factors. Through our two studies, I aimed to explore the drivers of native ad

performance across multiple stages of the customer journey. In Study 1, I leveraged a unique dataset of native advertising to identify the drivers of click-based effectiveness. In Study 2, I ran a field experiment to explore how consumers behave *after* clicking on a native advertisement. Thus, our research provides unique insight concerning the importance of advertiser-controlled factors in driving native advertising effectiveness. I discuss the implications of our research in the following sections.

Theoretical Implications

Given that native advertising is a relatively new form of digital advertising, it is understandable that research on the topic is limited. As a result, this research has important theoretical implications relevant to academics and provides new insight into the drivers of native advertising effectiveness. I discuss these theoretical implications next.

The importance of congruity. While the literature on congruity effects in advertising has a long tradition, the impact on native advertising effectiveness is unclear. Our research builds on this literature base by applying a congruity perspective to native advertising. For the main effects I tested in Study 1, I argued that native advertising would be most effective when advertising messages are visually and textually similar to (i.e., congruent with) editorial content. Consistent with our hypotheses, I find strong evidence that consumers are more likely to click on native ads when ads are placed in-feed. While all native ads could be considered as disguised in some form, native ads appear to particularly benefit when placed alongside editorial content (in-feed) rather than being placed in traditional ad space (in-ad). Furthermore, I find some evidence that using explicitly promotional language can hinder click-through rates.

It is also essential to take one step further and understand how congruity *between* advertising content and ad placement influence consumer response to native ads. In Study 1, I

demonstrate the importance of congruity between message appeal and ad location in driving click-through rates. I show how the effectiveness of ad appeals are contingent upon the native ad placement, such that solution-related appeals are more effective when delivered in-feed while promotional appeals are better served in traditional ad space.

Asymmetric effects of ad placement. Recent research has theorized – and found – that native ads may demonstrate asymmetric effects for different measures of effectiveness (Wang, Xiong, and Yang 2019). However, their study was limited to examining these effects exclusively for in-feed placements across different position ranks. I build upon their research by examining (1) multiple native advertising formats and (2) different advertising metrics. Consistent with the theorizing of Wang and colleagues (2019), I find that while in-feed placements produce higher click-through rates, users directed from in-feed placements are more likely to bounce from the landing page.

As I examined two different forms of native display ads, it appears that the post-click annoyance effect proposed by Wang and colleagues (2019) may be more nuanced than initially stated. Rather than thinking about display ads as disguised (i.e., native) or not disguised, I propose that it should be thought of more as a continuum. Specifically, as the level of disguise increases (i.e., from in-ad to in-feed), there is a tradeoff in annoyance, such that pre-click annoyance is reduced – which could result in higher click-through rate – while post-click annoyance is more substantial – resulting in higher bounce rates.

The role of ad content. This research also builds upon prior calls in the literature to assess the influence of message appeals on native advertising effectiveness (e.g., Harms, Bijmolt, and Hoekstra 2017). To the best of our knowledge, I am the first study to explore the role of advertising appeals in a native advertising context. While the digital advertising literature has

traditionally found positive effects for inherently promotional content (e.g., Hupfer and Grey 2005; Xie et al. 2004), our findings suggest that these appeals are more effective when served in traditional ad space, but somewhat less effective when served in-feed. Thus, it appears that consumers may process ad appeals differently for native ads than they do for other forms of digital advertising.

Integrating our results with prior digital advertising research, it appears that the effectiveness of advertising appeals is contingent upon the level of disguise in the ad placement. For ads that are fully integrated into the publisher's content (e.g., in-feed placements), ad appeals should be less commercial because they are not congruent with the surrounding content. In contrast, less disguised ads (e.g., in-ad placements; banner ads) should be more effective when using promotional appeals. Although less disguised ads are more susceptible to banner blindness, consumers should be more likely to expect advertising content in these areas of the webpage (Lapa 2007).

Managerial Implications

Our findings provide evidence of the drivers of native advertising effectiveness and offer insight into how native advertising campaigns could best be designed across multiple stages of the conversion funnel. In this section, I discuss how managers could leverage these results to design more effective native advertising campaigns.

Match the message to the placement. Eye-tracking studies have suggested that consumers view in-feed native ads in a similar way to editorial content (Sharethrough 2013). Across our studies, I find support for this argument. In Study 1, I find that the effectiveness of appeals is contingent upon the placement of the ad. More specifically, I find that promotion-related appeals are more relatively more effective when served in-ad, while solution-related appeals are

relatively more effective when served in-feed. While this may seem somewhat intuitive, our dataset suggests that managers are sub-optimally designing and deploying their native advertising campaigns. To further illustrate this point, I find that almost 56% of ads containing promotion-related appeals were shown in-feed while 49.5% of ads containing solution-related appeals were served in-ad. Taken together, these results suggest that over half of the 117 million native ad impressions examined in this research were served in sub-optimal environments. By utilizing our findings, managers can more efficiently coordinate their advertising messages with the appropriate native advertising format.

Improve bidding strategies. As digital advertising platforms offer multiple types of bidding strategies, the asymmetric effects I find for ad location on different measures of effectiveness can also help advertising managers improve their bidding strategies for native advertising campaigns. In this research, I found that in-feed placements are associated with higher click-through rates, but also higher bounce rates. Consequently, pursuing a cost-per-click bidding strategy for a campaign with in-feed ads would be suboptimal for the advertiser – as they would be paying the publisher for clicks that will soon bounce from the page. Instead, I suggest that advertisers utilize conversion-based bidding strategies for in-feed placements. For example, with a cost-per-action strategy, the advertiser pays each time a user completes a particular action, such as signing up for an emailing list. By utilizing a conversion-based bidding strategy, the advertiser would mitigate the higher bounce rates by consumers directed from in-feed placements.

Limitations and Future Research

While this research provides a first step in identifying the advertiser-controlled factors that drive native advertising effectiveness, many questions remain. Given the scope of this

research, I only explored the impact of informational content. However, integrative models of advertising suggest that advertising messages can influence consumers through two routes: an informational route and an emotional route (e.g., MacInnis and Jaworski 1989). As I did not address the impact of emotional content, I strongly encourage future research to do so.

In summary, the current research provides a first step in understanding what makes native advertising effective. As this new form of digital advertising continues to proliferate across social media sites and publishers across the Internet, I hope that this article stimulates additional research in this burgeoning field.

ESSAY TWO

UNDERSTANDING HOW DIFFERENT SOURCES OF CONGRUITY AFFECT NATIVE
ADVERTISING EFFECTIVENESS

Introduction

In general, the goal of advertising is to deliver the right advertisement to the right consumer at the right time. In the past, this was an enormous task. While advertisers might have known who their target audience was, finding the appropriate channels to do so was either difficult or costly. Over the years, technological advancements have given advertisers the tools and information to better identify and target their desired audiences. While these innovations have improved targeting capabilities across almost every advertising medium, it has been particularly impactful in the digital advertising space – where advertisers can present truly customized ads to diverse audience groups in the matter of seconds.

Similar to how news stations sell advertising space on their television and radio channels, websites utilize digital display advertising to monetize their content. Up until the last few years, digital display ads primarily came in the form of banner ads. However, publishers have become increasingly aware that these types of ads are disruptive to the consumer experience, such that consumers actively ignore them or use ad blockers to prevent them from loading (Wang, Xiong, & Yang, 2019). In seeking out alternative monetization options, many publishers have opted for a less interruptive form of display advertising called native advertising. Unlike banner ads, which are designed to draw attention away from publisher content, native ads utilize the creative assets of the publishing platform such that the ads appear as part of the website content.

While research on native advertising has increased in recent years, much of the literature has focused on the nature of disclosures (Aribarg & Schwartz, 2020; Boerman, Willemssen, & Van Der Aa, 2017). Although this provides useful guidance in establishing proper disclosure standards, disclosures are largely the responsibility of the publishing platform. Furthermore, an increasing number of native advertising agencies have aligned their disclosure standards in

accordance with FTC guidelines. However, little research has explored how advertisers can enhance the effectiveness of their native advertising campaigns.

Of the research that has explored the drivers of native advertising effectiveness, it is apparent that native ads appear to benefit from their congruity with the publisher's website design (Aribarg & Schwartz, 2020; Kim, Choi, & Kim, 2019). While banner ads are more effective at capturing consumers' attention, they are more likely to activate persuasion knowledge, which reduces the persuasiveness of the ad (Aribarg & Schwartz, 2020). Conversely, the unintrusive design of native ads is associated with improved advertising evaluations (Kim, Choi, & Kim, 2019; Lee, Kim, & Ham, 2016). However, many of these initial studies assume that true native advertising is not only designed similarly but is presented on websites that are contextually similar to the advertiser's product category (Kim, Choi, & Kim, 2019). In practice, this assumption may not hold, as advertisers have control over the websites the ad is shown on (i.e., contextual targeting) and the users the ad is displayed to (i.e., psychographic targeting). Consequently, practitioners and researchers should be interested in (1) discovering what strategies are most effective for native advertising and (2) how these strategies differ from what prior research has discussed – if they differ at all.

The purpose of this research is to investigate how different sources of congruity affect native advertising effectiveness. Although congruity has been widely studied in other advertising contexts, native advertising is a particularly interesting context because the ads are already designed to appear congruent with the publisher's editorial content. Yet, design congruency is not the only source of congruity advertisers should be concerned with. Prior research indicates that they must also be conscientious about congruity with the publishing website (Moore, Stammerjohan, & Coulter, 2005) and user-to-ad congruity (Sharma, 2000). Among the limited

research on congruity effects in native advertising, scholars have found that brand-image congruity (i.e., the congruity between the ad message and the brand) can enhance evaluations of informational sponsored content (Saenger & Song, 2019), while others have found that advertising evaluations are improved when native ad content is congruent with the publishing website (Kim, Choi, & Kim, 2019). While these studies provide unique insight with regard to how congruity influence evaluations of native advertising, both of these studies were conducted in the lab with subjective measures of advertising effectiveness.

To address this gap in the literature, I leverage data from one of the largest programmatic native advertising agencies in the United States to explore the interplay between different sources of congruity. More specifically, the native advertising agency provided me with data from an iconic retailer's native advertising campaign. Within the campaign, the retailer had targeted consumers across interest categories (e.g., user-to-ad congruity), gender (male vs. female), and device type (mobile vs. desktop). Using independent coders, I then measured congruity between the publishing domain and the brand (e.g., contextual congruity). With theoretically grounded hypotheses, I test how the interplay between these different sources of congruity affect native advertising effectiveness.

Conceptual Background and Hypothesis Development

Within the digital advertising environment there are many ad executional factors that managers have control over. These executional factors interact to – ideally – present the right ad content, to the right consumer, at the right time and place. Thus, these executional factors should play an important role in how consumers respond to digital advertising messages. In this research, we explore three executional factors that advertisers can be concerned with: (1) contextual congruity, (2) ad placement, and (3) targeting considerations.

While there are many forms of congruity (see: Moore, Stammerjohan, and Coulter 2005), contextual congruity – defined as the similarity between the publisher and the advertiser – is of particular interest for this research. This is because many digital advertising platforms now allow advertisers to target consumers on contextually relevant websites. For example, a company that sells automotive parts might use contextual targeting to advertise on automotive forums or articles about car repair. However, the digital advertising literature has suggested that leveraging this congruity could result in differential effects on consumers attitude and attention towards advertising content, which is something this research aims to elaborate on.

With the rise of native advertising, advertisers also have control over the placements of their advertising messages. Traditionally, digital display ads have been presented in areas of the web page that are strictly reserved for advertising content. In other words, the ad content is presented outside of the area that consumers see editorial content. In this research, this is defined as an in-ad placement. However, native advertising enables advertisers to present their ads alongside other editorial content. More specifically, ads are placed inside of the publisher's feed and mirror the appearance (i.e., same font and format) of other editorial content in the feed. Given that consumers examine these areas of the page in greater detail (Sharethrough 2013), one might expect there to be differences in consumer response across these ad placements.

Finally, advertisers also have the ability to target consumers based on their interests. When a consumer visits a website, the website often collects “cookies” from the consumer. These “cookies” contain information about the websites the consumer has visited and can be used to build interest profiles for each consumer that visits their website. Advertisers can then leverage this information to deliver ads to consumers that have a documented history of interest

in their product category. For example, a consumer that browses sports websites could be targeted by advertisers as a sports fan.

While these advertising elements can be impactful in isolation, the real complexities and value lies in understanding how these sources of information come together and can jointly impact consumer response to digital advertising messages. To fill this gap in knowledge, I develop theoretically grounded hypotheses for each of the executional factors in the following sections. I then test these hypotheses using a unique secondary data set.

The Effect of Contextual Congruity on Advertising Outcomes

The advertising literature has often used schema theory (Mandler, 1982) to study how different sources of congruity (or lack thereof) affect consumer response to advertising messages. Mandler (1982) theorized that the processing of congruent/incongruent information has differential effects for two sets of important measures of advertising effectiveness: (1) attention, and (2) attitudes (Moore, Stammerjohan, & Coulter, 2005). From an attentional standpoint, Mandler (1982) argues that incongruent information is considered novel and draws our attention toward that information. As a result, consumers are more likely to elaborate on this information to resolve this incongruity (Garcia-Marques & Hamilton, 1996).

In the context of digital advertising, contextual incongruity has been argued to be a particularly impactful advertising tactic for garnering consumers attention (Putrevu and Lord 2003; Rodgers 2003, 2004; Sundar et al. 1998). This is because Internet browsing, when compared to traditional media, is considered to be a more goal- and task-oriented medium (Cho and Cheon 2004; Chen and Wells 1999; Eighmey 1997). For consumers browsing the Internet, their primary task is consuming digital content, while paying attention to ads is a secondary task (Yoo, 2009). Thus, when consumers are exposed to an advertisement that is similar to the

content on the web page, it is more difficult to separate the ad from the website (Bezjian-Avery, Calder, and Iacobucci 1998; Hoffman and Novak 1996; Novak, Hoffman, and Yung 2000). Moreover, researchers have found that consumers pay more attention to banner ads that are incongruent with website content than congruent ads (Moore, Stammerjohan, & Coulter, 2005). Applying these findings to objective advertising metrics, perhaps the most direct measure of attention is click-through rate, which is the number of clicks an ad receives divided by the number of impressions (e.g., the number of times the ad was shown). Given that users generally avoid digital ads (Cho & Cheon, 2004), advertising on websites on that are incongruent with the advertiser should increase the amount of attention paid to those ads, and thus increase click-through rate. Thus, I propose the following:

H_{1A}: Click-through rates will be higher for ads that are incongruent with the publishing website than ads that are congruent with the publishing website.

While contextual incongruity can serve as an attention-grabbing tactic, Mandler (1982) argues that congruent information fits with consumers' schemas more than incongruent information. As a result, highly congruent advertising content is more likely to positively affect consumer attitudes towards the advertising content (Moore, Stammerjohan, & Coulter, 2005). This is because incongruent information requires consumers to process the advertising content more actively, which can lead to negative evaluations if the consumer does not have the motivation or ability to do so (Kamins & Gupta, 1994; Sengupta, Goodstein, & Boninger, 1997). Based on congruity theory, I argue that consumers who are consciously aware of a congruent advertisement (i.e., if they have chosen to process the advertisement by clicking on it) will more readily assimilate the information into existing activated schemas and will have more favorable attitudes towards the ad. As there are no objective measures of attitude towards the ad in digital

advertising, a consumer who has a positive attitude toward the advertising content should exhibit deeper levels of engagement with the advertiser's landing pages. For example, rather than bouncing from the landing page, they engage with the landing page content, click deeper into the advertiser's website, and perhaps, buy some of the advertiser's products. Thus, I posit:

H_{1B}: Post-click engagement will be higher for ads that are congruent with the publishing website than ads that are incongruent with the publishing website.

The Effects of Native Ad Placement and Contextual Congruity on Advertising Outcomes

Among the research that has explored the role of congruity/incongruity in digital advertising, much of it has centered around banner ads. Generally, this stream of research has found that the more incongruent the advertisement, the more attention it receives. While incongruity may serve as an attention-grabbing tactic for banner ads, there is reason to believe that native advertisements might benefit from contextual congruity. In their qualitative study of native advertising practitioners, there was overwhelming support for the notion that the embeddedness of digital native advertising content might require greater congruence with other content on the platform (Harms, Bijmolt, and Hoekstra 2017). This is because native ads – by definition – are designed to look similar to the publisher's content rather than standing out.

One of the first eye-tracking studies on native advertising could help resolve the differences between the native advertising literature and the banner ad literature. The study, conducted by Sharethrough and Nielsen (2013), found that native ads that were served in-feed received direct visual focus from consumers, while banner ads were processed peripherally. Furthermore, they found that – unlike banner ads – native ads are viewed in a similar way to editorial content (Sharethrough 2013). This would suggest that fully embedded native ads are already receiving attention from consumers, due to their placement in the content feed. Given

that web browsing is a goal-directed activity (Yoo, 2009), consumers are likely looking for additional content to consume when browsing through their feed. Thus, when a consumer reads through the content feed for the next article to read, a native ad that is congruent with the content they just read should be received more favorably (as opposed to a much different topic). Conversely, ads served outside of the feed will be competing for attention with the publisher's editorial content, so incongruity should be beneficial from an attentional standpoint. This is formally stated below:

H_{2A}: Ad placement will moderate the effect of contextual congruity on click-through rate, such that the effect of incongruity will be negative for in-feed native ads and positive for ads presented in traditional advertising space.

Initial research on native advertising suggests that not only will contextual congruity be beneficial for attentional measures, but for attitudes as well (Kim, Choi, & Kim, 2019). In their study of advertising nativeness, Kim and colleagues (2019) found that contextual congruence had a positive effect on consumers' attitude towards the ad, attitude towards the brand, and purchase intentions. Moreover, they found that the design of native ads can serve as a peripheral cue that yields more positive evaluations of the advertising content. This would suggest that users that click on in-feed ads are more likely to receive and engage with landing page content when the landing page is congruent with the content they were reading before. Accordingly, I propose the following:

H_{2B}: Ad placement will moderate the effect of contextual congruity on post-click engagement, such that the effect of incongruity will be negative for in-feed native ads and positive for ads presented in traditional advertising space.

The Effects of Targeting and Contextual Congruity on Advertising Outcomes

Much of the information-processing research over the past few decades has highlighted to the importance of consumers' levels of motivation and abilities in processing advertisements. (MacInnis and Jaworski 1989; MacInnis, Moorman, and Jaworski 1991; Petty and Cacioppo 1986; Petty, Cacioppo, and Schumann 1983). Drawing on the Elaboration Likelihood Model (ELM), these researchers have hypothesized and found that a consumer's level of motivation and ability to process information in the ad affects their response to advertising stimuli, particularly with respect to incongruity.

When individuals are fully motivated to process incongruity, they will invest substantial processing effort and will be more likely to examine the information presented in the ad in a systematic manner (Eagly and Chaiken, 1993). It is suggested that people assess the relevance of conditions, such as the importance of the processing of that information, in achieving their personal goals before engaging in elaborate processing (Lazarus, 1991). If the information is appraised to be relevant to personal goals, individuals will allocate their cognitive resources to processing that information (Kahneman, 1973).

With the amount of information advertisers can collect about consumers' browsing behaviors, advertisers are able to target consumers by their browsing history. Using this type of psychographic targeting, advertisers can more easily present their messages to consumers that are not only interested in the advertising content but have demonstrated knowledge of the product category. According to the ELM, targeting consumers should enhance their ability to resolve incongruity, as these consumers possess the motivation to cognitively elaborate on incongruent information (Lee & Schumann, 2004). As a result, targeting should enhance click-through rates when there is incongruity between the advertiser and the publishing platform.

H_{3A}: Targeting will moderate the effect of contextual congruity on click-through rate, such that the effect of incongruity will be more positive when the audience is targeted.

While targeting might enhance a consumer's ability to resolve incongruity at the attentional stage, I expect differential effects after the consumer has chosen to act on an advertisement (i.e., clicking on it). Taking the perspective that web-browsing is a goal-directed activity, a consumer that clicks on both a contextually congruent ad *and* is inherently interested in the product category should have synergistic effects on post-click engagement. Rather than having to change their browsing mode, these consumers are continuing their content browsing experience, and thus should be more receptive to the advertising message. Thus, I propose:

H_{3B}: Targeting will moderate the effect of contextual congruity on post-click engagement, such that the effect of congruity will be more positive when the audience is targeted.

Interactive Effects of Ad Placement, Targeting, and Contextual Congruity on Advertising Outcomes

While targeting may be universally beneficial in resolving contextual incongruity from an attentional standpoint, it may be particularly impactful for fully integrated native ads. While traditional banner ads have been shown to benefit from incongruity (from a click-based perspective), the native advertising literature – while limited – strongly argues that native ads should be congruent with the surrounding editorial content (Harms, Bijmolt, & Hoekstra, 2017). Perhaps this is because consumers are primed on what to read by looking at other articles in the feed. If a native ad is served in the feed that is highly incongruent with the surrounding content, it is likely to seem out of place. According to the ELM, they should only elaborate on that thought if they are motivated to resolve that incongruity, otherwise, they will continue browsing.

To illustrate this, consider the following example. An athletic clothing brand wishes to promote their products, so they develop a native advertising campaign where they target consumers that are interested in fitness. One of their ads is served on a news platform to a consumer that is interested in fitness. While the ad would not be congruent with the platform's articles in the feed (e.g., news articles), the consumer would be motivated to process the advertisement further, as the topic of the ad is personally relevant to them. Therefore, I propose the following:

H_{4A}: A three-way interaction is predicted where the combination of an in-feed placement and targeting is expected to be particularly effective in attenuating the negative effect of incongruity on click-through rate.

Given that consumer's process in-feed native ads similarly to editorial content (Sharethrough 2013), this would suggest that consumers will receive advertising content more favorably when the landing pages are consistent with both their current browsing goals and their interests in general. Thus, I propose that targeting should further enhance the post-click engagement for consumers that are served in-feed placements on congruent websites. This hypothesis is formally stated below.

H_{4B}: A three-way interaction is predicted where the combination of an in-feed placement and targeting is expected to be particularly effective in enhancing the positive effect of congruity on post-click engagement.

Methods

Data

Data were provided by one of the leading programmatic native advertising agencies in the United States. The firm provided me with data for native advertising campaigns from an

iconic clothing brand. The targeting of the campaigns neatly arranged into a 2 (Interest Category: Fashion vs. No Targeting) x 2 (Gender: Male vs. Female) x 2 (Device Type: Mobile vs. Desktop) research design. The campaigns were run over the course of 2019, accumulating over 9.5 million impressions, 42,000 clicks, and 20,000 visits. While the campaigns were targeted across different groups, 16 different creatives were used. Six of the creatives had the same textual content, but used gender-specific images (e.g., male/female models were used in creatives targeted towards males/females). The remaining four creatives were gender-neutral (e.g., the images contained both males and females). Importantly, each of the campaign scenarios were run with the same bidding strategy. As a result, I do not anticipate that our results would be skewed by differences in spending.

In the dataset, I was provided with a variety of objective advertising metrics. For each observation, I have cumulative data for the number of impressions, clicks, the price paid by the advertiser for the placements, and a post-click engagement score. The post-click engagement score is a function of four objective advertising metrics: time on site, visits, page views, and bounces (Kish, 2014). In addition to targeting variables, I coded information related to the creatives used (e.g., headline, description, image) as well as the domain on which the ads were published on (e.g., domain name).

Variable Operationalization

Measurement of Contextual Congruity

To measure congruity between the publishing domain and the advertiser I had three graduate assistants – who were not made aware of our hypotheses – independently code each of the 228 domains across similar measures. Each assistant was directed to open the domain in a separate browser window and asked to take a minute to observe the look and feel of the website.

Afterward, they evaluated congruity with the brand directly using a six-item scale which can be found in Table 9. Each combination of coders exhibited satisfactory levels of agreement – R1 and R2: 54%, R1 and R3: 63%, and R2 and R3: 74%. The results of the coding found that 68.5% of domains were classified as incongruent.

Table 9: Scale Items

Scale	Item
<i>Contextual Incongruity: (1: Disagree/0: Agree)</i>	
	A [brand name] advertisement would be effective on this website.
	This website content is consistent with the [brand name] brand.
	Visitors of this website would be likely to wear [brand name] clothing.
	This is the type of website I would expect [brand name] to advertise on.
	The website and [brand name] have similar images.
	The website conveys the same impression as [brand name].

Measurement of Advertising Effectiveness

In this research, I explore two objective measures of advertising effectiveness as our dependent variables. To assess top of the funnel performance, I measure click-through rate. Click-through rate has been prominently featured in the digital advertising literature as a measure of advertising effectiveness (Aribarg & Schwartz, 2020; Wang, Xiong, & Yang, 2019) as it addresses how effective the ad was at getting exposed users to engage with ad content (i.e., an attentional measure). The second dependent measure I explore is post-click engagement score. As mentioned previously, the engagement score is a function of four objective measures of advertising effectiveness: time on site (t), visits (v), page views (p), and bounces (b). More specifically, the engagement score, e , is the linear combination of three logistic functions (Kish, 2014):

$$e = 4 \times f\left(\frac{b}{v}\right) + 2 \times g\left(\frac{p}{v}\right) + 4 \times h\left(\frac{t}{v}\right)$$

where all three functions f , g , and h are logistic functions of the form:

$$f(x) = \frac{1}{1 + e^{-\frac{x-\beta}{\alpha}}}$$

Thus, the engagement score is comprised of three functions: one of bounce rate (b/v), one of page views per visit (p/v), and time on site per visit (t/v). Each of these functions is highly related to user engagement with the ads. First, bounce rate measures the degree to which users left the landing page without interacting with the landing page content. As the goal of digital advertising is to drive website traffic, advertisers desire lower bounce rates. Second, are page views per visit, which is another major measurement that marketers use to measure the performance of their website (Kish, 2014). In the context of this study – where the landing pages is a feed of the retailers’ products – more page views would suggest that consumers are engaging with landing page content in a meaningful manner. Finally, time on site per visit is another metric that measures engagement with the landing pages.

Control Variables

To account for potential confounding variables, I control for a variety of factors related to the ad and user characteristics. There were 14 unique images used across the advertising campaigns. Four of the images contained both male and female models, while the remaining ten showed only a male or female model. To control for the effect of demographic targeting, I created a dummy variable indicating whether the ad displayed a gender-neutral image (coded as 0) or a gender-specific image (coded as 1). Furthermore, some of the images contained product details, I created a dummy variable to control for this. Finally, the ads were distributed at seven different flight dates. To control for this temporal variation, I created six dummy variables.

Finally, I also control for user characteristics. In the dataset, I was provided with multiple variables related to the characteristics of individuals that viewed the ads. The first of these is gender. As mentioned previously, the advertiser had designed their campaign such that they

equally distributed the cost across male and female consumers. Given that gender has been shown to influence native advertising effectiveness (Wang, Xiong, & Yang, 2019), it is important to control for this in our hypothesis testing. The second user characteristic I control for is the type of device the ad is viewed on. Given the space constraints of mobile devices, consumers may evaluate advertising messages different than they would on desktop or tablet devices (Bart, Stephen, & Miklos, 2014). The descriptive statistics for variables in the data can be found in Table 10.

Table 10: Descriptive Statistics

Variable	Mean	SD	Min	Max
Incongruent	68.5%	0.464	0	1
In-Feed	28.9%	0.453	0	1
Targeting	34.5%	0.475	0	1
Gender-Specific	53.4%	0.499	0	1
Product Detail	7.8%	0.268	0	1
Male	46.4%	0.499	0	1
Mobile	65.8%	0.474	0	1
Clicks	33.12	65.87	1	606
Impressions	7,557.43	22,246.91	1,666	578,758
Engagement Score	4.75	2.36	0.564	10

Model Specification

For this study, I observe two different measures of online advertising effectiveness: click-through rate, post-click engagement score. In practice, click-through rates are presented as either a percentage, where the target variable is the numerator (clicks), and the exposure variable is in the denominator (impressions). Starting with the most basic form of exposure, I let X_i represent the number of impressions for observation i . Over the course of a fixed time period, X_i can range from 0 to infinity as there is no limit to the number of times that a webpage can be visited. Theoretically, the number of clicks (y_i) produced from those impressions can range from 0 to X_i . However, click-through rates for digital display ads have historically been low, often below 1%.

For example, a study by Sokolik and colleagues (2014) found that click-through rates ranged from .06% to .16%. As I am interested in the count of clicks given X_i impressions, one might be tempted to model the click-through rate λ_i as a Poisson process, with mean λ_i . However, researchers have argued that one should allow for heterogeneity in λ_i by assuming that λ_i comes from a gamma distribution (Danaher, 2007). The Poisson-gamma mixture (negative binomial) distribution that results is

$$\Pr(Y = y_i | u_i, \alpha) = \frac{\Gamma(y_i + \alpha^{-1})}{\Gamma(y_i + 1)\Gamma(\alpha^{-1})} \left(\frac{1}{1 + \alpha\mu_i} \right)^{\alpha^{-1}} \left(\frac{\alpha\mu_i}{1 + \alpha\mu_i} \right)^{y_i}$$

where

$$\mu_i = X_i\mu$$

$$\alpha = \frac{1}{v}$$

The parameter μ is the mean incidence rate of y per unit of exposure. As mentioned previously, X_i is used to denote the number of impressions for observation i . As the mean of y is determined by the number of impressions and a set of k regressor variables, I use the following expression to relate these quantities.

$$\mu_i = \exp(\ln(X_i) + \beta_1 x_{1i} + \beta_2 x_{2i} + \cdots + \beta_k x_{ki})$$

where the set of k regressor variables includes not only the focal variables (contextual congruity, ad placement, targeting), but control variables related to the consumer (device, gender) and the advertisement (image gender, product detail, flight date). In estimating engagement score – a continuous variable – I use traditional OLS regression with the same set of regressors.

Results

Tables 11 and 12 provide the parameter estimates for the regressions for click-through rate and engagement score, respectively. For each dependent variable, the first model presents

the main effects, the second model adds the interaction of targeting and contextual congruity, the third model separately adds the interaction of ad placement and contextual congruity, and the fourth model presents the full three-way interaction between ad placement, targeting, and contextual congruity.

Table 11: Model Results for Click-Through Rate

	(1)		(2)		(3)		(4)	
	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.
Focal Variables								
In-Feed (IF)	-1.07***	0.01	-1.07***	0.01	0.05*	0.03	-0.64***	0.06
Incongruent	0.44***	0.01	0.41***	0.02	0.57***	0.01	0.52***	0.02
Targeting	0.06***	0.01	0.01	0.02	-0.01	0.01	-0.28***	0.02
Other Parameters								
Intercept	-5.19***	0.02	-5.18***	0.02	-5.29***	0.02	-5.19***	0.02
Male	0.08***	0.01	0.08***	0.01	0.06***	0.01	0.02**	0.01
Mobile	-0.57***	0.01	-0.57***	0.01	-0.60***	0.01	-0.63***	0.01
Gender-Specific	-0.10***	0.02	-0.10***	0.02	-0.05**	0.02	0.01	0.02
Product Detail	0.12***	0.03	0.12***	0.03	0.12***	0.03	0.11***	0.03
Flight Date FE	Included		Included		Included		Included	
Interactions								
Incongruent x Targeting			0.08***	0.02			0.11***	0.03
Incongruent x IF					-1.40***	0.03	-1.07***	0.06
IF x Targeting							1.09***	0.07
Incongruent x IF x Targeting							0.44***	0.08
Model Fit Statistics								
AIC	58,085		58,076		56,528		54,488	

N = 1,153 Campaign Scenarios, * $p < .10$; ** $p < .05$; *** $p < .01$

Table 12: Model Results for Post-Click Engagement

	(1)		(2)		(3)		(4)	
	<i>Estimate</i>	<i>S.E.</i>	<i>Estimate</i>	<i>S.E.</i>	<i>Estimate</i>	<i>S.E.</i>	<i>Estimate</i>	<i>S.E.</i>
<i>Focal Variables</i>								
In-Feed (IF)	0.24	0.16	0.21	0.16	0.17	0.29	-0.50	0.42
Incongruent	0.48***	0.15	0.94***	0.19	0.45*	0.18	0.80***	0.21
Targeting	-0.13	0.15	0.68***	0.25	-0.12	0.15	0.47	0.29
<i>Other Parameters</i>								
Intercept	4.49***	0.32	4.17***	0.33	4.51***	0.33	4.22***	0.33
Male	-0.06	0.14	-0.06	0.14	-0.06	0.14	-0.06	0.14
Mobile	-0.69***	0.15	-0.71***	0.15	-0.69***	0.15	-0.70***	0.15
Gender-Specific	-0.23	0.22	-0.26	0.21	-0.23	0.22	-0.21	0.22
Product Landing Page	0.59***	0.22	0.63***	0.22	0.59***	0.22	0.67***	0.22
<i>Interactions</i>								
Incongruent x Targeting			-1.22***	0.30			-1.03***	0.36
Incongruent x IF					0.10	0.34	0.76	0.47
IF x Targeting							0.95*	0.58
Incongruent x IF x Targeting							-0.87	0.69
<i>Model Fit Statistics</i>								
Adjusted R-Squared	0.04		0.05		0.04		0.05	
Δ R-Squared			0.01		-0.01		0.01	

N = 1,153 Campaign Scenarios; * $p < .10$; ** $p < .05$; *** $p < .01$

Effects of Contextual Congruity on Advertising Outcomes

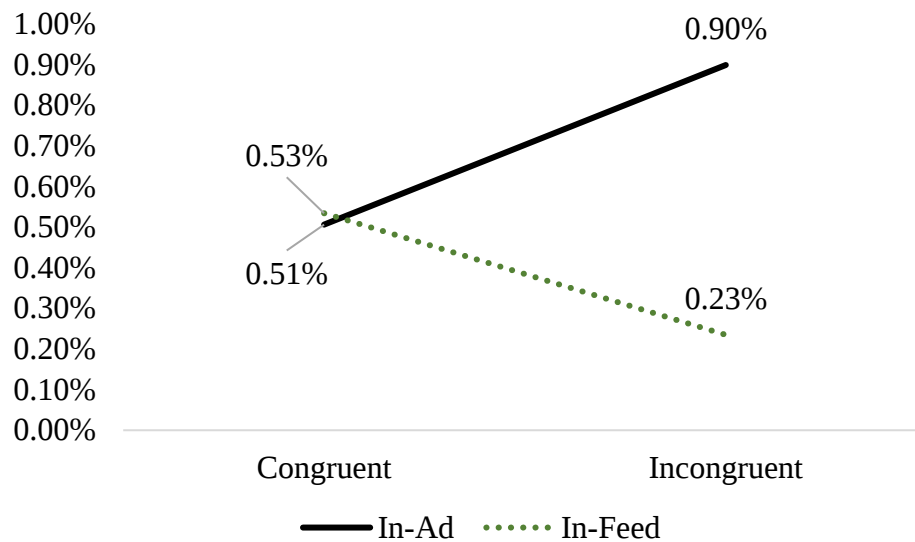
In H_{1A}, I predicted that incongruity between the advertiser and the publisher would have a positive impact on click-through rates. As the sign for “incongruent” was positive and significant (0.44; z : 34.27; $p < .001$), I find support for this hypothesis. For H_{1B}, I predicted that incongruity between the advertiser and the publisher would have a negative impact on post-click engagement. However, I find the opposite result, as the coefficient for “incongruent” was positive and significant (0.48; z : 3.13; $p < .01$). Thus, I do not find support for this hypothesis.

Effects of Ad Placement and Contextual Congruity on Advertising Outcomes

For H_{2A}, I predicted that ad placement will moderate the effect of contextual congruity on click-through rate, such that the effect of incongruity will be negative for in-feed native ads and

positive for ads presented in traditional advertising space. As the coefficient for the interaction of in-feed and incongruent was negative (-1.39; z : -42.99; $p < .001$), I find support for this hypothesis. This interaction is presented visually in Figure 3.

Figure 3: Effects of Ad Placement and Contextual Congruity on Click-Through Rate

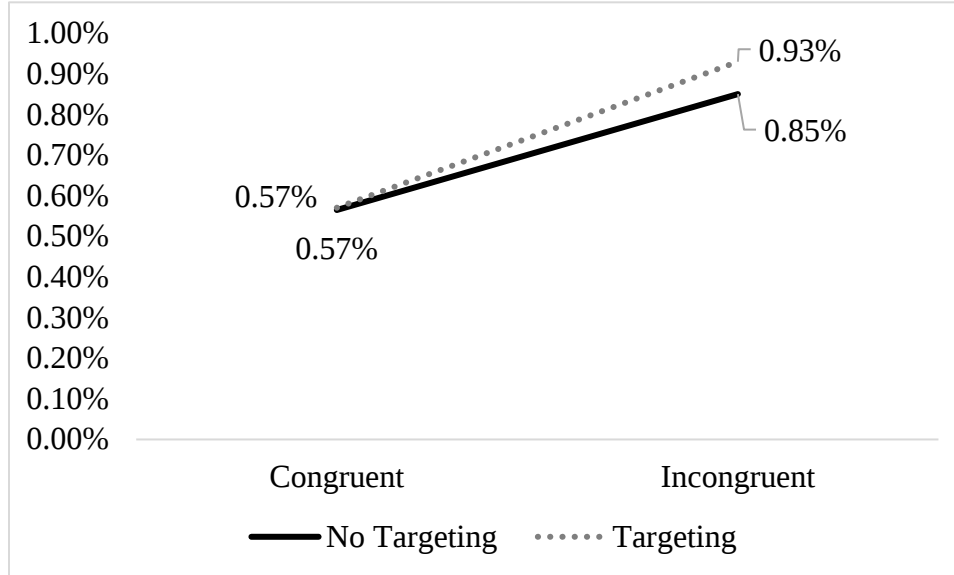


For H_{2B} , I predicted that ad placement will moderate the effect of contextual congruity on post-click engagement, such that the effect of incongruity will be negative for in-feed native ads and positive for ads presented in traditional advertising space. However, as the interaction term was not significant (0.10; z : 0.29; $p > .50$), I do not find support for this hypothesis.

Effects of Targeting and Contextual Congruity on Advertising Outcomes

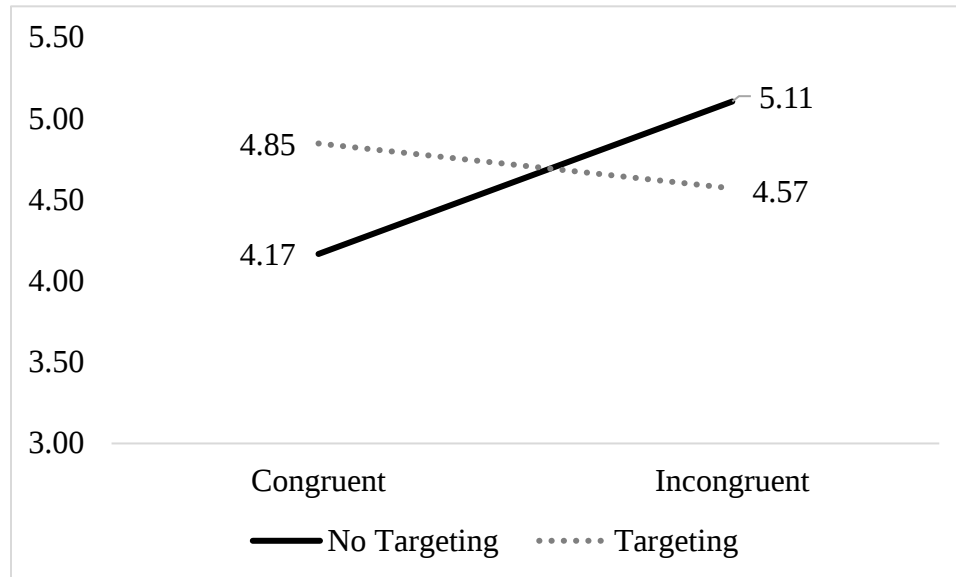
For H_{3A} , I proposed that targeting will moderate the effect of contextual congruity on click-through rate, such that the effect of incongruity will be more positive when the audience is targeted. Given that I find a positive and significant interaction term (0.08; z : 3.26; $p < .01$), I find support for this hypothesis. A visual plot of this interaction can be found in Figure 4A.

Figure 4A: Effects of Targeting and Contextual Congruity on Click-Through Rate



For H_{3B} , I predicted that targeting would moderate the effect of contextual congruity on post-click engagement, such that the effect of congruity will be more positive when the audience is targeted. While I had proposed in H_{1B} that contextual incongruity would have a negative main effect, I had found a positive main effect. In examining the interaction of targeting and incongruent, I find a negative and significant interaction term (-1.22 ; $z: -3.99$; $p < .001$). As indicated in Figure 4B, targeting changes the slope of contextual congruity from negative to positive, providing support for H_{3B} .

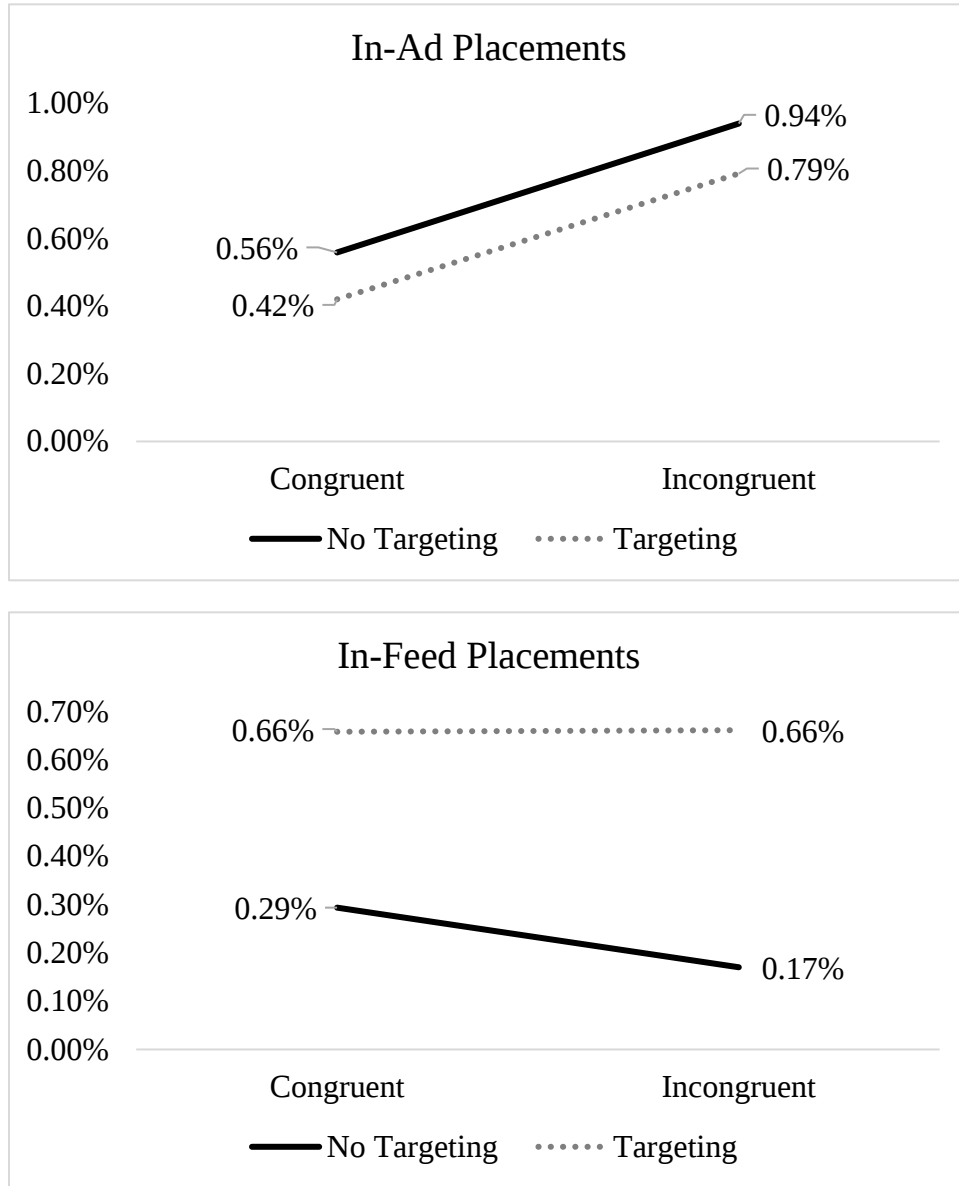
Figure 4B: Effects of Targeting and Contextual Congruity on Post-Click Engagement



Three-Way Interaction of Ad Placement, Targeting, and Contextual Congruity on Advertising Outcomes

Then for H_{4A} , I predicted a three-way interaction where the combination of an in-feed placement and targeting is expected to be particularly effective in attenuating the negative effect of incongruity on click-through rate. As indicated in Table 11, Panel 4, each of the interaction terms were significant, suggesting a strong three-way interaction between the parameters. As shown in Figure 5A, targeting shows little more than a main effect for in-ad placements, but a strong effect for in-feed placements. Not only are click-through rates higher for in-feed placements when using targeting, but the negative effect of incongruity is attenuated. Thus, I find support for H_{4A} .

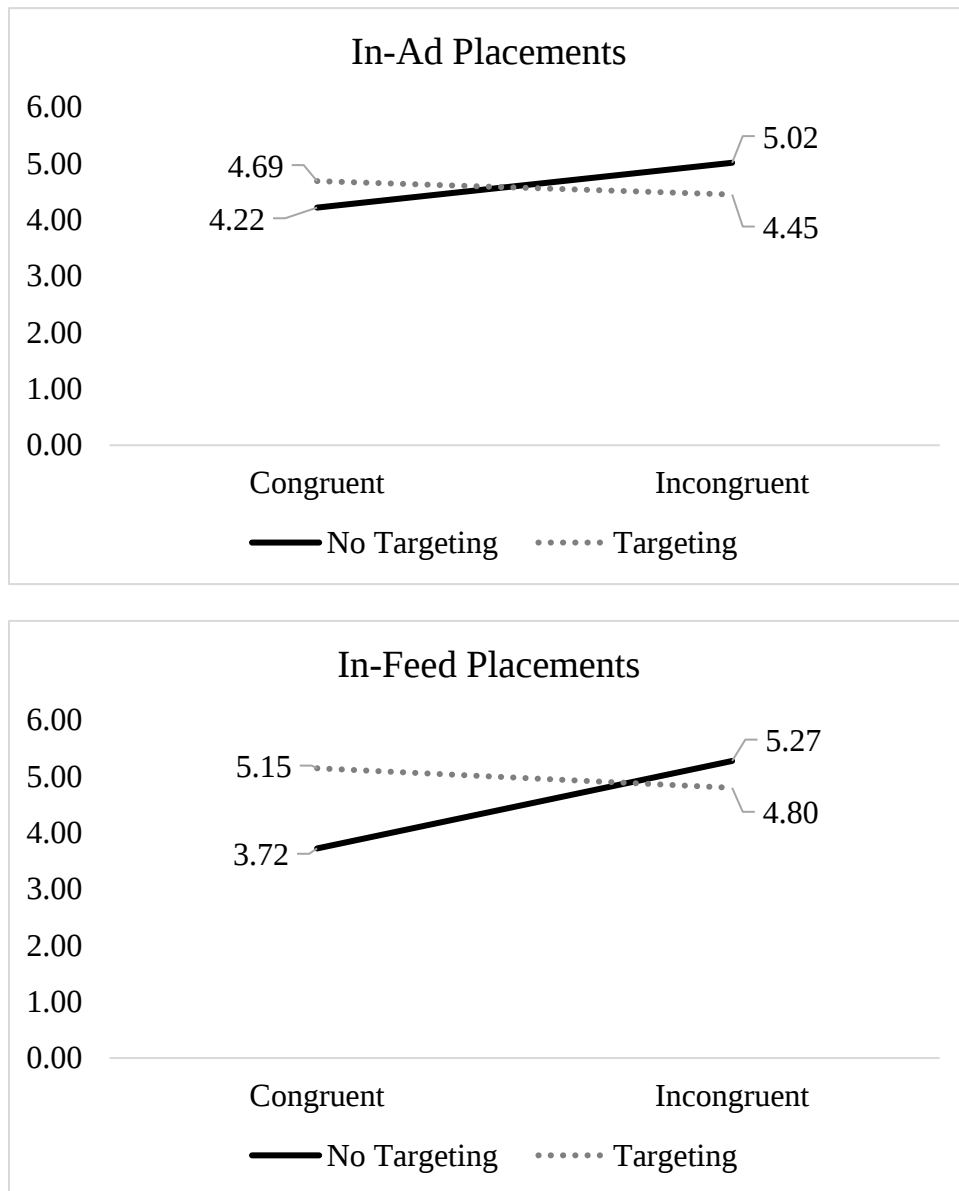
Figure 5A: Effects of Three-Way Interaction on Click-Through Rate



Finally, in H_{4B}, I predicted a three-way interaction where the combination of an in-feed placement and targeting is expected to be particularly effective in enhancing the positive effect of congruity on post-click engagement. In examining the combination of interaction terms (Table 12, Panel 4), only the interaction of incongruent and targeting are significant at a 95% confidence level. Thus, I do not find support for this hypothesis. Moreover, in examining the

interaction plots seen in Figure 5B, I see that while the combination of contextual congruity, targeting, and in-feed placements results in relatively higher post-click engagement, the pattern of the interaction is not as pronounced as it is for in-ad placements.

Figure 5B: Effects of Three-Way Interaction on Post-Click Engagement



Discussion

Given the proliferation of native advertising across digital publishing platforms, alongside increasing consumption of digital content among consumers, a better understanding of native advertising is needed. As an initial step in addressing this need, our analysis sheds light on how brands can design more effective native advertising campaigns. Contributing to the debate on how congruity affects advertising outcomes, our results demonstrate how different sources of congruity affect different stages of the digital customer journey. With a variety of targeting options available to advertisers, this research has unique implications for managers and scholars alike. I highlight these implications in the following sections and conclude with directions for future research.

Managerial Implications

The Nuance in Leveraging Congruity. Contextual targeting has been one of the primary methods for digital advertisers to more effectively reach their audience. However, a question for many advertisers is whether they should use it? My findings suggest that it is dependent on where the advertisements are placed on the webpage. Consistent with prior research, I find that ads served in traditional ad space are best shown on contextually incongruent websites. However, for ads that are served in the publisher's feed, click-through rates are higher when ads are congruent with the surrounding content. Thus, advertisers should be considerate of the placement of their ads when employing contextual targeting.

The Importance of Targeting in Native Advertising. This research shows that targeting is particularly effective for fully integrated native advertising when examining click-through rates. While consumers appear to desire congruent advertising content, targeting consumers interests can help them resolve contextual incongruity. Thus, if advertisers are not employing contextual

targeting (i.e., advertising exclusively on contextually congruent websites), this research would recommend that the advertiser target users by their interests.

Theoretical Implications

Incongruity in Advertising. In line with the literature on banner advertising, I find that incongruity can enhance click-through rates when ads are served in traditional advertising space. As previous research has shown, ads that are served in traditional ad space are generally avoided by web browsers (Cho & Cheon, 2004). However, advertisers can leverage contextual incongruity to draw attention to the advertisement (Moore, Stammerjohan, & Coulter, 2005). My findings suggest that the increased attention given to these ads results in higher click-through rates.

Ad Placement as a Moderator of Contextual Congruity. However, when ads are served alongside editorial content, contextual incongruity shifts from an attention-grabbing tactic to perhaps an annoyance. My results suggest that when ads are delivered in-feed, consumers are more likely to click on ads when the ad content is congruent with the publisher's content. This finding is consistent with recent literature on native advertising that suggests that native ads should be shown on websites that are similar to their product category (Harms, Bijmolt, & Hoekstra, 2017; Kim, Choi, & Kim, 2019).

The Role of Targeting in Processing Contextual Incongruity. The ELM states that consumers should be more willing to process incongruity when they are (1) motivated and (2) possess the ability to do so (MacInnis and Jaworski 1989; MacInnis, Moorman, and Jaworski 1991; Petty and Cacioppo 1986; Petty, Cacioppo, and Schumann 1983). Interestingly, I find that this proposition only holds true for in-feed placements. As hypothesized, consumers may find contextual incongruity an annoyance for in-feed placements. However, by targeting consumers

who have demonstrated interest and prior knowledge, advertisers can offset this negative effect of incongruity.

Limitations & Future Research Directions

This study has several limitations that offer avenues for future research. Perhaps most notable is the fact that I tested our hypotheses on one brand. As brand-related factors such as product type and involvement have been shown to differentially affect advertising response (Bart, Stephen, & Miklos, 2014), I encourage future research to test these hypotheses across a diverse set of brands.

Second, I operationalize the attentional component of consumer processing as click-through rate. As digital advertising technologies continue to grow, advertising platforms are now able to capture the viewability of digital advertising messages. To further explore the role of congruity effects in the attentional stage, I encourage future research to probe these effects from not only a click-based perspective, but a viewability perspective as well.

Finally, changes in privacy laws can impact advertisers' ability to target consumers. With privacy concerns at the top of consumers' minds, legislation has been introduced to increase the restrictions on how advertisers and publishers collect information on consumers. Major platforms such as Google Chrome and Apple iOS have started to implement stricter privacy standards that will make it harder for advertisers to track consumers across websites using third party data. If or when these come to fruition, advertisers control over who sees their ads will be significantly hindered.

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