NEW DETAILS EMERGE! Revealing the Effects of Clickbait Headlines on User Responses

Completed Research

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Abstract

This study investigates the influence of a conventional method of delivering news headlines, clickbait, on online users’ perceptions and responses. An experiment was conducted on two groups of news headlines—traditional news and clickbait—to provide empirical evidence of the effects of clickbait on online users. The findings suggest that clickbait headlines can evoke users’ arousal and curiosity. In addition, the results from structural equation modeling fill the gap in the literature by providing evidence of the factors influencing users’ intention to read and share online news. The results reveal that while the major determinant of users’ intention to read news stories is curiosity, perceived knowledge quality appears to be the main factor users consider when sharing online news stories.

Keywords

Online news, clickbait headline, perceived knowledge quality, emotion, information processing

Introduction

Internet advertising revenues in the United States have increased to the highest ever in the first quarter of 2017, hitting a record of $19.6 billion (IAB, 2017). The trend is increasing, and the strong growth is caused by news media providers’ strategies to attract online users to visit their websites (e.g., see Kim & Kim, 2018). One of the most popular strategies that news media websites have employed to capture online users’ attention is “clickbait.” A clickbait headline is a news headline written with a provocative writing style that encourages users to click on the headline link and to read the news story on a particular website (Chakraborty, Paranjape, Kakarla, & Ganguly, 2016). Examples of clickbait headlines include “What Happens to this Man INSIDE a Water Balloon Will Blow Your Mind” or “8-Year-Old Starts Singing with Her Eyes Closed but When She Opens Her Eyes… My Jaw Dropped! OMG!”

In general, clickbait headlines exploit a narrative strategy called “forward reference” (Yang, 2011) that provides just enough information to create curiosity and thus arouses users to click on the headline to read further to satisfy their curiosity. However, the main purpose of clickbait headlines is to lure users to a website that collects the view statistics or number of clicks, which are used to generate income from the website’s advertising. In addition, the content or full story of clickbait headline is typically misleading, unverified, seldom corrected, and does not live up to the users’ expectations.

Over the years, there have been an increase in the number of complaints about clickbait headlines, especially on social network websites. Therefore, several websites (e.g., Facebook and Google) have declared that they would decrease the reach and prevalence of clickbait headlines (Statt, 2017). While online users have recognized clickbait headlines as spam because of their ill effects, several news media websites still rely on this strategy to attract users to visit their websites. This is due to its effectiveness to get users to take
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notice and create attention. In addition, in some cases, even when online users find that clickbait headlines are annoying, they still click if the level of emotion conveyed in the clickbait headlines is extreme (Reis et al., 2015).

While online advertising has been explored widely in the existing literature, there has been little research examining clickbait headlines in the advertising context; thus, more research is needed to provide a better understanding regarding the effects of clickbait headlines on online users. Therefore, this study builds on previous studies in online advertising by raising a question about how online users perceive clickbait headlines. Do online users negatively perceive clickbait headlines? What are the effects of clickbait headlines on user intentions?

Literature Review and Research Model

Clickbait Headlines

Serving as an online tabloid version of traditional news, a clickbait headline provides soft-news content that generally provokes readers’ curiosity and then postpones revealing the content of the story. Typically, clickbait headlines are created by a forward-referring narrative writing strategy that exploits a curiosity gap (Loewenstein, 1994) where the headlines provide referencing cues to generate curiosity, which subsequently compels readers to read the full stories by clicking on the link embedded in the headlines to fill the curiosity gap. However, since the true goal is to generate web page views, instead of providing verifiable information, clickbait headlines usually don’t live up to the expectation of the readers.

According to the marketing and journalism literatures, few studies have examined clickbait headlines and their consequences. For example, Chen et al. (2015) examined methods to detect clickbait and provided potential cues for recognizing both textual and non-textual clickbait. Blom and Hansen (2015) reported that the forward-referring writing technique can be used to create effective news headlines; however, using such a technique to create clickbait headlines is typically problematic, since the headlines are often considered misleading and deceptive (Chen, Lin, Yen, & Linn, 2011). In addition, Chakraborty et al. (2016) have provided an approach based on text mining to automatically detect clickbait headlines.

Hypothesis Development

This study aims to advance our knowledge in the area of online users’ perceptions toward clickbait headlines by testing the proposed hypotheses and research model developed based on theories that explain the interrelationships between users’ attitudes and behavioral intentions. Figure 1 exhibits the proposed research model of this study. Note that hypotheses H1a, H2a, and H3a are tested separately from the research model.

![Figure 1. Proposed Research Model](image-url)
This research employs the cognitive-affective process of communication model (Bagozzi, 1982) to explain a process that an online user goes through during the evaluation of a clickbait headline. This model primarily suggests that there are two factors related to human information processing and behavior in the information systems that explain decision making. These factors include the cognitive and affective aspects (e.g., see Davis, Bagozzi, & Warshaw, 1989; Wu & Wang, 2005). In the clickbait headline context, this cognitive-affective model is of great value for application in this study since, by the nature of online news, both cognition and affect are essential triggers of individuals' attention (Rodrigo & Barrie, 2007) and can be used to explain the individuals' reactions toward clickbait headlines which primarily include perceived knowledge quality, arousal and curiosity as shown in Figure 1.

Regarding the cognitive dimension, the cognitive process is considered as a key element of the mental representations of objects such as knowledge or beliefs (Bagozzi, 1982). This aspect of processing recognizes information of news headlines in order to form beliefs and judgements. In this study, the cognitive aspect of news headlines is referred to as perceived knowledge quality. Based on the concept of knowledge quality (Chiu, Hsu, & Wang, 2006), perceived knowledge quality is defined as an individual’s perception of accuracy and reliability of a news headline. Perceived knowledge quality is expected to be higher in traditional news headlines than in clickbait headlines. This is due to the emotion-eliciting and attention-grabbing nature of clickbait (Grabe, Zhou, Lang, & Bolls, 2000), which can reduce individuals’ capability to cognitively process the content described in the headlines (Lang & Dhillon, 1995). Consequently, when the cognitive process capability is limited, individuals may trigger the automatic elaboration to evaluate clickbait headlines as unbelievable and low quality due to their overexaggerated and provocative characteristics (Gibbons, Lukowski, & Walker, 2005; Grabe et al., 2000). Thus,

\[ H1a: \text{The level of perceived knowledge quality in clickbait headlines is lower than that of traditional news headlines} \]

In addition, past studies have suggested a positive relationship between the cognitive dimension and behavioral intentions (e.g., Davis et al., 1989) such that perceptions of performance impact users’ usage. Therefore,

\[ H1b: \text{There will be a direct positive relationship between perceived knowledge quality and intention to read news.} \]

\[ H1c: \text{There will be a direct positive relationship between perceived knowledge quality and intention to share news.} \]

Regarding the affective dimension of the cognitive-affect process model (Bagozzi, 1982), emotional stats can influence information processing and behavioral intention. Past studies have suggested several emotions that greatly influence individuals’ judgement and evaluation. Examples of the emotions include happiness, boredom, anger (Lin, Yang, & Chen, 2007), arousal (Uribe & Gunter, 2007), and sadness (Hyo & Glen, 2011). However, according to the nature of clickbait headlines, we consider arousal and curiosity as main emotions found in news and, consequently, include them in our investigation. There are several frameworks in the psychology literature that hypothesize the relationship between emotion and behavioral intentions. However, in this study, we adopted the stimulus-organism-response (S-O-R) model proposed by Mehrabian and Russell (1974) to provide the foundation of the effects of emotion on intentions. The S-O-R framework has been adopted in several areas including computer-human interaction (Koo & Ju, 2010), marketing (Thang & Tan, 2003), and information systems (Éthier, Hadaya, Talbot, & Cadieux, 2006). Overall, the S-O-R model suggests that the stimuli (the news headlines or clickbait headlines) can influence individuals’ emotional states (organism), whose response may result in their behavioral intentions (response). Therefore, we propose the following hypotheses

\[ H2a: \text{The level of arousal in clickbait headlines is higher than that of traditional news headlines.} \]
\[ H2b: \text{There will be a direct positive relationship between arousal and intention to read news.} \]
\[ H2c: \text{There will be a direct positive relationship between arousal and intention to share news.} \]

\[ H3a: \text{The level of curiosity in clickbait headlines is higher than that of traditional news headlines.} \]
\[ H3b: \text{There will be a direct positive relationship between curiosity and intention to read news.} \]
\[ H3c: \text{There will be a direct positive relationship between curiosity and intention to share news.} \]
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Methodology

Sample

Two hundred and thirteen participants who were undergraduate students at a large U.S. university participated in this study. A unit of course extra credit was given as an incentive for participation. Participants were 18-25 years old. The sample included 85 female subjects (40%) and 128 male subjects (60%).

Stimuli and Data Collection

An experimental design was conducted in a laboratory to test the hypothesis. The stimuli included eight news headlines. Each news headline consisted of two versions—traditional news version and clickbait version. The news headlines were selected from legitimate news websites (e.g., www.cnn.com), and then were transformed into clickbait by incorporating common clickbait characteristics which included stop words, hyperbolic words, Internet slang, punctuation patterns, and common clickbait phrases (see Chakraborty et al., 2016). The headlines are presented in Table 1.

<table>
<thead>
<tr>
<th>#</th>
<th>Traditional News Headline</th>
<th>Clickbait Headline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Great acrobat dies while attempting a stunt onstage</td>
<td>SHOCKING: Great acrobat dies onstage after a stunt gone horribly wrong</td>
</tr>
<tr>
<td>2.</td>
<td>More teenagers are abusing alcohol than ever before</td>
<td>Is your teenager abusing alcohol? Read this to find out a shocking trend</td>
</tr>
<tr>
<td>3.</td>
<td>Teens who read more than 7 books a year score higher on SAT</td>
<td>Teen scores high on SAT after reading more than 7 books a year: Test prep companies hate him</td>
</tr>
<tr>
<td>4.</td>
<td>Laughter may boost energy just like moderate exercise</td>
<td>Feeling sluggish? Scientists find that laughter boosts energy just like exercise</td>
</tr>
<tr>
<td>5.</td>
<td>Approximately 1 out of 5 people have a sexually transmitted disease</td>
<td>Shocking new study finds that there’s a 20% chance you have a sexually transmitted disease</td>
</tr>
<tr>
<td>6.</td>
<td>Failed talks bring about more fighting between two countries</td>
<td>BREAKING NEWS: War between two countries continues after peace talks fail</td>
</tr>
<tr>
<td>7.</td>
<td>Most parents have looked in children’s room without their knowledge</td>
<td>Did your parents snoop in your room? Shocking survey says most have</td>
</tr>
<tr>
<td>8.</td>
<td>FBI encourages police in Cincinnati to crack down on stolen car “chop shops”</td>
<td>Uncle Sam to the rescue: FBI encourages Cincinnati police to crack down on stolen car “chop shops”</td>
</tr>
</tbody>
</table>

Table 1. Experiment Stimuli

Experimental Procedure

Participants were randomly assigned to one of the experimental conditions—either the traditional news group or the clickbait group. First, the experimental tasks were introduced to participants. Then, participants, in each group, read two sets of news headlines in random order. Each set composed of four news headlines. The headlines were presented in blocks with blank images to mimic how the headlines are displayed on legitimate websites. Blanks images were used to prevent the confounding effects on the outcome. After reading the news headlines, participants completed a questionnaire measuring perceived knowledge quality, arousal, curiosity, intention to share and intention to read news story.
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Measures

Measurement items from existing literature were used in this study. The measures were assessed by a seven-point Likert scale. Perceived knowledge quality items were developed based on informativity and believability items proposed by Chiu et al. (2006) and Gibbons et al. (2005). Items for arousal were adapted from Deng and Pool (2010). Items for curiosity were adapted from Agarwal and Karahanna (2000). Items for intention to share and intention to read news story were adapted from Chang et al. (2013).

Results

Manipulation Check

A manipulation check was performed to validate the manipulations of news headlines conditions (traditional and clickbait). Three 5-point Likert scale items based on the definition and characteristics which included sensationalism and provocative writing style of clickbait headlines were used to assess the manipulation of the news headlines. A t-test analysis revealed that participants exposed to the clickbait headlines identified the clickbait headlines clearly. The result was statistically significant and different between participants in the traditional and clickbait headline conditions (mean_{traditional} = 4.45 vs. mean_{clickbait} = 4.96, t = 9.544, p = 0.002). Therefore, the manipulation was successful.

Measurement Model Assessment

Construct validity and construct reliability were performed to assess the quality of the research measures. Construct validity is demonstrated when there are relatively high correlations between measures of the same construct (convergent validity) and low correlations between measures of different constructs (discriminant validity). Construct reliability was assessed using composite reliability (CR) and Cronbach’s alpha. The results reveal that CR values ranged from 0.903 to 0.974 and the Cronbach’s alpha values ranged from 0.786 to 0.965. Both the CR and Cronbach’s alpha values are above the acceptable level suggested by Hair et al. (2006). According to the results of confirmatory factor analysis, item loading values demonstrate convergent validity since the lowest loading value is 0.638, which is higher than then threshold of 0.6 (Bagozzi, Yi, & Phillips, 1991; Chin, Gopal, & Salisbury, 1997; Straub, 1989).

Furthermore, a discriminant validity analysis was performed to ensure that the constructs differ from each other. The correlation between items in any two constructs should be lower than the square root of the average variance shared by items (e.g., AVE) within a construct (Hair, Tatham, Anderson, & Black, 1995). Our results indicate that the square root of the variance shared between a construct and its measurement items is greater than the correlations between the construct and other constructs in the research model. Therefore, the measures appear to satisfy the criteria for discriminant validity.

Hypothesis Testing

A series of t-test was performed to test H1a, H2a, and H3a. The results are presented in Table 2. Overall, all the hypotheses are supported.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Mean (Std. Dev.)</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Traditional News</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Headline Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1a: Perceived Knowledge</td>
<td>4.227 (1.350)</td>
<td>3.529 (1.340)</td>
<td>3.665</td>
</tr>
<tr>
<td>Quality</td>
<td>Traditional News</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clickbait Headline Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H2a: Arousal</td>
<td>4.146 (0.739)</td>
<td>4.579 (0.581)</td>
<td>-4.603</td>
</tr>
<tr>
<td>H3a: Curiosity</td>
<td>4.489 (1.257)</td>
<td>4.901 (1.260)</td>
<td>-2.308</td>
</tr>
</tbody>
</table>

Table 2. Hypothesis Testing Results. * Significant at the 0.05 Level
Regarding the research model, structural equation modeling was conducted to evaluate the causal relationships between the constructs using SmartPLS 2.0. The results indicate that all the paths are statistically significant at the level of 0.05. Figure 2 summarizes the results of the hypothesis tests for the research model, including standardized path estimates, t-values, and the amount of variance explained in each endogenous variable (R²). With respect to the variance explained, perceived knowledge quality, arousal, and curiosity together contribute to approximately 50% of the variance in intention to read and 18% of the variance in intention to share, respectively. All the R² values of the endogenous constructs in the model exceed the 10% threshold recommended by Falk and Miller (1992) suggesting that the model is well-specified. In general, the results indicate that perceived knowledge quality produces the strongest impact on intention to share (std. coefficient = 0.262) and curiosity generates the strongest effect on intention to read (std. coefficient = 0.474).

Figure 2. Research model hypothesis testing results (*p < 0.05)

Discussion and Conclusion

Overall, the results suggest that all the hypotheses are statistically significant at the 0.05 level. Traditional news headlines are found to have higher levels of perceived knowledge quality than clickbait headlines. However, as expected the levels of arousal and curiosity of clickbait headlines are significantly higher than those of traditional news headlines. Regarding the research model testing, the results reveal that all three factors (perceived knowledge quality, arousal, and curiosity) are significant determinants of intentions; however, their effects are at different levels. Perceived knowledge quality is found to be a major determinant of online users’ intention to share news headlines. On the other hand, curiosity, which is an affective factor, is found to be a strong determinant of intention to read. Arousal is also found to influence intentions, but its effects are not as strong as those of perceived knowledge quality and curiosity.

From a theoretical perspective, this study provides the following contributions. First, this research extends previous studies by investigating a conventional news headlines, clickbait. In general, clickbait headlines are found to effect readers differently from traditional news headlines. According to the cognitive-affective process of communication model, while perceived knowledge quality, as a factor in the cognitive aspect, is higher in traditional news headlines than in clickbait headlines, the levels of affective factors, such as arousal and curiosity of clickbait headlines are also higher than traditional news headlines. To the best of our knowledge, this study provides empirical evidence in an experimental setting of the effects of clickbait headlines that have not been studied in the literature, demonstrating potential implications for future research. Second, this study demonstrates that the cognitive-affect model can serve as a useful theoretical framework for predicting online users’ intentions to read and share news stories in the online news context.
By explicating how cognitive and affective factors influence behavioral intentions, future research could build upon the results of this study by investigating components of online news headlines that affect perceived knowledge quality, arousal, and curiosity. Third, perceived knowledge quality, arousal, and curiosity are confirmed as antecedents to intentions to read and share. While these relationships have been supported by previous studies in the online news area, this is the first investigation in which these relationships are validated in the context of clickbait.

This study also provides practical implications that are of interest of online news website managers. First, while clickbait headlines have been recognized as spam by online users, our results indicate that clickbait headline can be perceived positively if they are created properly. Clickbait headlines appear to be an effective strategy to increase online users’ arousal and curiosity. This study provides opportunities for future research to examine specific characteristics of clickbait headlines that can evoke online users’ arousal and curiosity. Second, our results indicate that about 50% of variance explained in intention to read is contributed to perceived knowledge, arousal, and curiosity, and that curiosity is the strongest predictor of intention to read. Therefore, rather than using the traditional forward-reference technique to arouse users which may raise skepticism, news website managers should employ strategies that generate curiosity in the headlines. This would be a more effective strategy to draw users’ attention without risk of disappointing the users when they read news stories. Third, while curiosity is found to influence intention to read, the cognitive aspect factor, perceived knowledge quality, it appears to be a stronger predictor of intention to share news headlines (or stories). Therefore, in addition to creating curiosity headlines, news website managers should consider providing quality content in the headlines which would encourage them to share the headlines. This can subsequently give the websites more chances to reach a larger group of viewers and thus generate higher revenue.

As with all empirical studies, there are certain limitations of this investigation. First, since the nature of the data collection process required an experimental setting, the hypothetical tasks in the experiment may present an artificial environment for online news. Future studies may need to investigate such effects of clickbait headline in the real setting. Second, we focused on only certain characteristics of clickbait headline in our stimuli manipulations. Additional research can therefore explore different sets of clickbait characteristics, especially the sensationalism aspects. Third, we investigated online news in general. Future research can explore further how clickbait headlines in specific news categories influence online users to better understand the effects of clickbait.

This empirical study is one of the first to experimentally investigate clickbait headlines. While clickbait headlines have reportedly been recognized as misleading and deceptive, if they are carefully developed and appropriately used, clickbait headlines can be considered an effective strategy to attract online users given the intense competition in today’s online market environment.

REFERENCES


