

Tabloidization versus Credibility: Short Term Gain for Long Term Pain

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ABSTRACT

Print news agencies have been under pressure from falling sales and advertising revenue and increased competition. As the Internet became the dominant medium, news agencies invested heavily in their websites and apps, providing their news for free, rather than selling a print edition. Reducing the cost of production and removing access barriers such as geographic location had the potential to increase readership and advertising, covering costs and maintaining profits. Unfortunately, this business model has for the most part failed. Many higher quality news agencies are now implementing paywalls on their news websites to once again monetize their product. Others have begun to emulate the look and feel of tabloid news websites to increase readership and stickiness and advertising revenue. This study shows the negative impact of such visual tabloidization on initial impressions of credibility, which may have long term detrimental effects on the news agency.

**The authors would like to dedicate this paper to the memory of Professor Séamus "Shay" Lawless, the supervisor of this work who died on May 16th 2019 after fulfilling his dream of summiting Mount Everest.*

Author Keywords

Credibility; Tabloidization; News Website Design; News Website Aesthetics; First Impressions

CCS Concepts

•**Human-centered computing** → **Empirical studies in HCI**;
Web-based interaction; User studies;

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CHI '20, April 25–30, 2020, Honolulu, HI, USA.

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ACM ISBN 978-1-4503-6708-0/20/04 ...\$15.00.

<http://dx.doi.org/10.1145/3313831.3376388>

INTRODUCTION

It has long been known that the news industry is under pressure. Between 1984 and 2018, US weekday newspaper circulation fell from over 63 million to less than 28 million per day [4]. Between 2005 and 2018, advertising revenues fell from a high of nearly \$50 billion to \$14 billion [4]. In 2006, 74k journalists, editors, photographers and associated staff worked in US newsrooms. In 2018, this figure had virtually halved to 38k. There has also been an overall contraction in the number of print titles in circulation in most western societies [98]. Many news agencies have ceased printing physical newspapers and news magazines and have fully transitioned to online only dissemination [88, 43, 15, 13, 6]. To combat this decline, most print news agencies put an increased emphasis on their online presence to maintain or increase circulation. The majority initially adopted a free content *digital display model* [66] which required them to provide their content for free to drive visitors to their websites to generate advertising revenues. This business model relies on a combination of low-cost content, high traffic volumes – often generated through social media – and large amounts of advertising [34, 51]. The digital display model has proved unsustainable [53, 79]. Many news websites which initially adopted it have since instituted paywalls for some or all their content, [20, 72], or they have adopted a membership model [95].

Online news circulation is also coming under pressure. Between Q4 2016 and Q4 2018, digital audiences for the top fifty US newspapers have flatlined or fallen slightly [4]. The average time visitors spend on news websites has also fallen from 2.59 to 2.32 minutes. There are also significant drawbacks for news agencies that decide to publish online only. A recent study showed an 81% reduction in time spent with the news website Independent.co.uk compared to its print publication [91]. For many of the news websites still attempting to make a success of the digital display model, there may be a temptation to adopt the practices of lower quality tabloid or *content farm* news websites [3, 73]. As Mackay and Bailey state: "*Tabloidization can result from competition, technology, and the desire for circulation.*" [57]. Many quality news organ-

isations have already begun to do so by publishing increasing amounts of sensationalist, lewd, or celebrity-focused content.

There is a visual distinction between mainstream and tabloid news websites [93, 59]. Mainstream has been defined by popularity [70], accreditation [45], professionalism [96], and circulation [17]. We define mainstream as popular mass media news with high levels of professionalism, circulation and accreditation, focused on serious news. Tabloid news websites tend to have less structure or formality in their layout. They use brighter colours, more pictures, larger headlines, and publish shorter articles. The content of the articles, headlines and pictures is also more extreme, violent, lewd or salacious. The combination of these elements creates a different overall aesthetic, which is easily and quickly recognisable.

Credibility has been studied as part of Persuasive Science since the 1940s [37, 38, 39]. Often defined in terms of the worthiness of being believed [46], Schweiger maintains that it is a major factor in the success or failure of a news source [77], while McKnight and Kacmar state that: *"Website success hinges on how credible the consumers consider the information on the website"* [58]. A range of studies have also shown that the design and aesthetics of a webpage can impact credibility [75, 1, 14, 33, 67, 68, 27]. Previous work has also shown that the visual presentation of a news websites homepage can impact perceived bias, a core dimension and measure of credibility [82, 83, 84]. Fogg and Tseng maintain that: *"a web page may appear credible just because of its visual design"* [30]. In a large study by Fogg and his team with over 2,500 participants, nearly half of respondents mentioned the *"design look"* of the website as being important to judgements of credibility [29].

Consumers are spending less time on news websites [4]. They also spend less time looking at news websites than their respective print publications [91]. Recent research has also shown that many mobile news consumers tend to: *"snack" or "graze" on the news* [62, 64]. They visit their favourite news websites several times or more a day to get a sense of what is going on, rather than reading the news in detail [8]. Consequently, the initial impressions conveyed by a news website's homepage to users are critical to first impressions of credibility [28].

MOTIVATION

It is apparent that many mainstream news websites have begun to emulate the visual design of tabloid or content farm websites. Although there is existing work investigating the impact of tabloid and broadsheet writing styles on credibility [57], and clickbait style headlines on source credibility [42], no research has been conducted on the collective effect of the overall visual aesthetic. The effect of this visual aesthetic on initial impressions of credibility is of increasing importance given the habits of growing numbers of users to snack or graze on news throughout the day.

RELATED WORK

News Website Homepage Design and Aesthetics

While the aesthetic of news website homepages are primarily derived from its design, there are a host of other influential factors. These include the textual, picture, and graphic content, advertising, third party integrated services such as stock

market quotations and social media, and even a user's computer screen, browser set up, and other environmental factors. Lavie and Tractinsky believe that aesthetics is synonymous with beauty [54], which in turn has been defined by Moshagen and Thielsch as: *"an immediate pleasurable subjective experience that is directed toward an object and not mediated by intervening reasoning"* [63]. Lavie and Tractinsky identified 'classical' and 'expressive' as the main dimensions [54] of website aesthetics. Aesthetics have previously been shown to impact judgements of professionalism [22], success [44], and perceived usability, satisfaction, and pleasure [63]. Website aesthetics and or attractiveness have also been shown to be a positive determinant of use and satisfaction [94]. News website homepages have changed much since the 1990s [21, 78, 52], yet their purpose remains the same. Essentially, they are a collection of 'advertisements', made up of headline links, often accompanied by article ledes and images. Homepages are designed to enable users to quickly scan the most important news and get a sense of current events. While the content of a news website's homepage constantly changes, the overall aesthetic remains much the same due to the design of the website (fonts, colour schemes etc.), which the content adheres to. Fig.1 shows the homepage of the mainstream news website Independent.co.uk in 2004, 2009, 2014, and 2019 and its increased use of visual elements.

Credibility

There are four main types of definitions of credibility in the literature. Definitions of the first type define credibility as a perceptual variable of the receiver of the communication [65, 30]. The second category of definitions relate to believability, the ability of the communicator to inspire belief in the receiver [10]. One of the most commonly accepted definitions is by Fogg and Tseng who state that: *"Simply put, credibility can be defined as believability. Credible people are believable people; credible information is believable information."* [30]. Definitions in the third category characterize credibility as the product of its dimensions. When Hovland and his team in the 1950s defined the first two dimensions of credibility as *trustworthiness* and *expertise*, they set in train a movement that continues to this day. They believed that the value given to the arguments of a source is the resulting permutation of these two dimensions. *"In any given case, the weight given a communicator's assertions by the audience will depend upon both of these factors and the resultant value can be referred to as the 'credibility' of the communicator."* [37]. Reflecting this, Gaziano and McGrath state: *"Several researchers have concluded that credibility is a multidimensional concept, although the dimensions identified vary from study to study"* [32]. Definitions of credibility of the fourth type are philosophical. These try to encapsulate a complete understanding of the term. Metzger and Flanagin maintain that: *"In the fields of communication and psychology, credibility is traditionally defined as the believability of information, and it rests largely on the trustworthiness and expertise of the information source or message, as interpreted by the information receiver"* [61]. In this study, credibility was defined as: *"The believability of a source, medium, or message"*.



Figure 1. Evolution of the design and aesthetic of the Independent.co.uk homepage: L – R: 2004, 2009, 2014 and 2020 (via the Wayback Machine).

Tabloidization

Tabloidization occurs when mainstream press put more emphasis on entertainment and emotive content and present it in an easy to consume manner, emulating established tabloid press [76, 81]. Roich also points out the reduction in the quality of the news by pointing out that tabloidization is: *"the process of quality decline of the press"*. Skovsgaard points out that tabloidization is the: *"spillover of reporting practices from the tabloid newspapers to other, harder news genres."* [80]. Bennett laments the fact that tabloidization has and continues to happen to many publications: *"Topics that were once relegated to gossip columns and the screaming headlines of the tabloids are now increasingly the stuff of mainstream news"* [7]. Showing a detailed understanding of the complexity of the issue, Esser puts forward a micro and macro definition of the process [23]. From a micro-level he maintains that it is: *"the revision of traditional newspaper and other media formats driven by reader preferences and commercial requirements."* He goes on to point out that this occurs due to an increased emphasis on entertainment and a decrease in the amount of informative news coverage. This includes the publication of shorter news stories and the use of less formal language and presentation. In his work comparing tabloid journalists to mainstream journalists, Skovsgaard also found that tabloid journalists are to some extent driven by commercial interests or profit orientation [80].

There is limited work on the impact news website features on the perception of credibility. Exceptions include research showing the deleterious effect of tabloid writing styles [57] and clickbait headlines [42]. A review of the domain found no work on the overall effect of visual tabloidization on perceived credibility. Aesthetics is typically defined in a positive manner cf. [63, 54], however this is not appropriate for tabloids which often depict extreme, ugly, or lewd content designed to evoke emotive responses in consumers. Therefore, we define tabloid website aesthetics as the combination of loud colours, large and loud headlines, reduced textual and increased visual content of a more extreme, violent, emotive, or sensationalist nature, presented in the less formal layout typical of their mainstream counterparts.

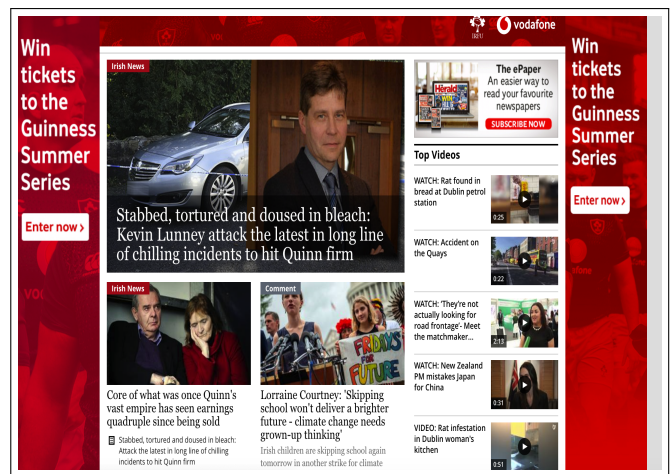


Figure 2. Tabloidization in a mainstream broadsheet newspaper.

Fig. 2 depicts a screenshot of the top portion of one of the Irish news website www.independent.ie taken on the 19th of September 2019. The Independent.ie website is the online presence of the daily Irish Independent, and the weekly Sunday Independent. While their main competition, The Irish Times, is usually considered the national *paper of record*, the two Independent newspapers are considered mainstream broadsheet newspapers. Brandenburg maintains that the: *"Irish Independent has somewhat higher circulation figures, and probably qualifies as the only truly national broadsheet, in that its readership is not concentrated in one particular region or city"* [9]. As is apparent in this screenshot, the homepage increasingly looks like a tabloid. McLachlan and Golding's tabloidization examination framework, which focuses on *range, form, and style*, is a useful tool for examining this. *Range*: Compared to mainstream websites, there is decreased focus on information, especially hard, political, financial, or foreign news. In this instance, two of the main news articles on the right refer to a rat infestation in a Dublin patrol station accompanied by shocking videos. A second main story focuses on a traffic accident with a hint that it can be "watched" in a video embedded in the article. Another main story is an entertainment piece

focused on matchmaking. *Form*: The use of more simplistic formats to convey information such as increased visuals and decreased amounts of text. This screenshot displays less than 150 words. There are also five news stories which are in video format. *Style*: This has been defined as: "increasing personalization in the coverage" [93]. The visuals accompanying the main story focus on the victims face and car. The focus on the faces of elderly people in a depressed or resigned state in the second main news article is also evidence of this. Along with the increased levels of advertising, each of these elements combines to create an aesthetic which is increasingly similar to a typical tabloid news website.

Initial or First Impressions of News Website Credibility

A range of studies into visual appeal [69], user experience [89], design [22], and trustworthiness [5], have demonstrated the importance of first impressions of a website. Basso et al. maintain that: "initial impressions persist and can affect whether or not a visitor returns", while Tuch et al. have shown that first impressions can be formed before a user even begins to use the website [92]. Douneva et al. distinguish between *immediate* first impressions, which are a bottom-up process of human visual perception, and *deliberate* first impressions, which are a top-down reflective process [22]. Several studies have shown that users can form initial first impressions in as little as 50 ms, though most studies show that more complete evaluations are made at 500 ms, 1,000 ms and 2,000 ms [55, 92, 90, 35]. Robins and Holmes have shown that users judge a website's credibility in an average of 3,420 ms [75]. It was decided to allow participants 2,500 ms to form judgments of the credibility as this would be enough to enable participants to judge what McLachlan and Golding define as *form* – increased visuals and decreased text – but not so long as that judgements would be made on a more in depth analysis of the basis of content, usability, or website quality [59].

As part of a larger experiment, McKnight and Kacmar have previously demonstrated the importance of first impressions of the credibility of a website providing legal advice to consumers [58]. The present study differs from their work in that it focuses on news websites. It also differs in that it involves rating the credibility multiple times, as cumulative levels of distortion are applied to increase the level of tabloidization steadily. This is especially pertinent in the current news business environment. The present study is also more focused on *immediate* first impressions, whereas McKnight and Kacmar's study was more focused on *deliberate* first impressions.

HYPOTHESIS

The directed hypothesis is that as the level of visual tabloidization applied to each news website's homepage increases, there will be a corresponding negative effect on initial impressions of credibility.

H₀: Increased tabloidization will not decrease the initial impression of the credibility of a news website homepage.

H_A: Increased tabloidization will decrease the initial impression of the credibility of a news website homepage.

EXPERIMENT DESIGN

Four homepages¹ from popular mainstream news websites were selected to be included in the experiment. Each homepage would be subject to four levels of distortion to cumulatively increase the level of visual tabloidization. To ensure the experiment measured participants' initial impressions of credibility, each distorted website homepage was shown for 2,500 ms before disappearing. Participants' initial perception of credibility was measured using four common scale items, the mean of which constituted the credibility score. The experiment was set up so that the resulting data could be analysed using a two-way repeated measures ANOVA. The experiment was set up to search for large or significant differences between control versions of each news website's homepage with no branding (D0), and their respective distorted versions, also with no branding, and with increased levels of tabloidization (D1 – D3). Should a noticeable decline in perceived credibility be found, and/or sufficient significant differences between the D0s and D3s for multiple websites, then H₀ would be rejected and H_A accepted.

Selection of Websites

The news websites whose homepages would be used in the experiment were selected based on the following criteria. 1) They are popular mainstream news websites. Three of them fit Kenix's description of mainstream and were used in her study [52]. 2) They currently show very little or no tabloidization, thus providing a blank canvas. 3) Though it could be argued that Vox contains more news content which could be categorised as entertainment or human interest, it was included as an example of one of the newer genera of news websites. This would enable us to compare this *digital native* news website's homepage against the homepages of older news websites. It would also be possible to see if increased levels of tabloidization have the same effect.

Selection of Homepages

Although participants would only be exposed to each website homepage for 2,500 ms, it was important to prevent variations in news content (headlines and images) from affecting the experiment. For several weeks the homepages of each website were checked at midday. When the main news stories of at least three of the four homepages were the same, a screenshot was taken. On March 12th 2019, there was a lot of commonality in the news reported across all four of the selected website homepages. Thus, screenshots from this date, taken at 12:00 PM, form the base material for all of the homepages used in this experiment. To further increase the commonality of the news displayed in each of the four website homepages, a news story that was reported as a secondary story in, e.g. The Guardian, but which was reported as the main story in the other three websites, had its position and prominence increased to be the main story. Thus, all four website homepages displayed their own respective versions of each news story at roughly the same level of prominence. The two main news stories from that date were the ban on the Boeing 737 Max aeroplane from flying and the sentencing of Paul Manafort.

¹The New York Times – www.nyt.com, Reuters – www.reuters.com, The Guardian – www.theguardian.com, and Vox – www.vox.com

Table 1. Summary of memorable features of tabloids.

| Three Seconds | One Minute |
|---------------------------|----------------------------------|
| Red and Purple Colours | Boring Content |
| Lots of people and images | Showbiz' and 'Exclusive' buttons |
| Boyband | Important stories were smaller |
| Young People in pictures | Repeated Articles |
| Sob Stories | Disaster stories |
| Colour blue | Bad quality writing |
| Bad Quality images | Repeated images |

Table 2. Summary of participant expectations of tabloids.

| | |
|--|---|
| Headline text size | Slogany captioned images |
| Headline word count | Personal stories |
| Placement and contents of ads | Basic text |
| Text Colours and Font | Upper and lowercase letters |
| Large coloured banners | Doesn't look official/specific template |
| Bad pixel quality photographs | Pop-up boxes |
| Creepy or pun related headlines | Boobs and Swimwear |
| Red writing | 'Follow Us' Buttons |
| Words such as 'Exclusive' or 'Showbiz' | Shock factor |
| Pop up videos | Minimal text |

Selection of Homepage Features for Distortion

Two pre-experiment surveys were conducted to identify which features of the news website homepages should be distorted to increase their level of tabloidization. The first pre-test was designed to establish which features of a tabloid participants found to be the most memorable. 23 participants were presented with printed images of three tabloid website homepages and were asked what features they remembered after three seconds, and again after one minute. A summary of the most common terms from this is presented in Table 1. It is clear from the results that participants were more likely to remember simple visual aspects of each tabloid such as their colours in the three-second viewing, while they were more likely to remember aspects of the content in the one-minute viewing. A second pre-test was conducted by undertaking a semi-structured survey with 31 people to identify what visual features they would expect to see on a tabloid news website. A summary of the results of this are shown in Table 2.

Distortions

Four levels of cumulative distortions (D0 – D4) were applied to each homepage. The first, D0, only removed the name, logo and other explicit branding. Distortions D1 - D3 cumulatively increased the level of tabloidization by increasingly distorting the visual features and characteristics identified in the pre-tests to make them look like tabloid homepages. The decision to use a control and three levels of distortions was based on the experiment design, particularly the use of a Latin square. It was also felt that after three levels, each of the homepages looks sufficiently like a typical tabloid homepage. The four distorted homepages for The New York Times: D0, D1, D2 and D3 are shown in Figs. 3, 4, 5 and 6.

D0: This is the control, a baseline homepage/distortion. It was designed to measure the credibility of each website's homepage before the tabloidization distortions were applied. Other than increasing the commonality of the news stories, as described above, the only other change was replacing each website's title with "The Newspaper" or simply "News" and removing other obvious branding, see Fig. 3.

D1: The actions taken include: reduction in the DPI and quality of each image. The headline and text size were increased by 15% and 3% respectively. The number of option tabs on each page were increased, and the social media images made more prominent, see Fig. 4.

D2: The actions taken include: the font of both headlines and text was changed to Arial, Helvetica, sans-serif. The size of headlines and texts were both increased by a further 3%. Social media and share buttons were taken from the Daily Mail and The Sun and added to each homepage. The DPI and quality of each image was further reduced, see Fig. 5.

D3: The actions taken include: replacement of all original images with comparable images about the same news story taken from taken from the Daily Mail. "Exclusive" and "Latest" banners were added to the larger images. Headline and article content was expanded and the text size was increased a further 10%. The headlines of each article were coloured red to match the banners and other red elements, see Fig. 6.

Timing for Initial Impressions

As shown in the related work section, several studies have demonstrated that users can form first impressions in as little as 50 ms [55], while others have shown more complete first impressions are made in 500 ms, 1,500 ms and 2,000 ms [55, 92, 90]. Robins and Holmes also showed that credibility evaluations could be made in 3,420 ms [75]. After some testing which showed that times of less than 2,000 ms were not sufficient for participants to feel comfortable providing the rating for the four credibility measures, it was decided to display each distorted website homepage for 2,500 ms. This would be enough to gather their *immediate* first impressions and not *deliberate* first impressions [22].

Dimensions and Measures of Credibility

Credibility is typically measured as a multidimensional construct. The individual dimensions are chosen based on how the participants should understand or encapsulate the construct. As Gaziano and McGrath maintain, the choice of dimensions and measures will influence participant understanding [32]. Once the dimensions of the construct are defined, one or more individual measures and associated scales may be used to measure each. The dimensions should also be descended from or related to the definition of credibility provided to participants. Another factor influencing the choice of dimensions in this study was its timed element. As participants would see the distorted website homepages for only 2,500 ms, it was decided to use four dimensions, so that participants could provide ratings for each, while the impression of each homepage aesthetic was fresh in their minds. It was felt that using e.g. 15 measures as was done by Chung [16] would be too many when trying to measure first impressions. Many other studies have used varying numbers. Johnson and Kaye typically used four dimensions, while Sundar has used two, six, and 21 [40, 87, 46, 47, 48, 49, 50]. The dimensions were chosen from existing studies measuring the credibility of news information online. They were: trustworthiness, professional, believable, and expertise. The mean of these four measures constituted the credibility score.

Figure 3. The New York Times: - D0.

Figure 4. The New York Times: - D1.

Figure 5. The New York Times: - D2.

Figure 6. The New York Times: - D3.

METHODOLOGY

The experiment was set up as a *4x4 within subjects incomplete counterbalanced measures design*. Incomplete counterbalancing was achieved by arranging the Homepage x Distortion combinations in a reduced form 4x4 Latin square. Participants were randomly assigned to one of 4 diagonal paths through the Latin square that intersected with the distorted homepage/distortion combinations, thus ensuring that each participant experienced each of the four news website homepages, and each of the four cumulative levels of distortion once. To reduce carryover effects and task fatigue, once assigned to a path, the four homepage/distortion combinations from the path that the participant was assigned to were displayed in random order. One attention question, similar in form and action to the four credibility rating tasks, was added to each participant's path to ensure diligence. The study had two independent variables, *news website homepages* and *distortions*. The dependent variable was *credibility*, the mean of the four individual measures, trustworthiness, professional, believable, and expertise.

Crowdsourcing and Participant Profile

Participants were recruited on the crowdsourcing platform Prolific Academic². Participation was limited to US residents whose first language was English. All participants were at least 18 years of age. The full experiment was deployed in nine iterations, to ensure increased balance in age profile, in early July 2019. Participants were paid £0.85. In total, 290 submissions were recorded. Submissions were discarded for the following reasons: 1) those which failed the attention question, 2) those which were completed in less than two minutes, indicating automated bots, or humans who were not paying attention and only undertaking the experiment to gain money, 3) submissions with large amounts of NULL values, indicating the participants were not properly participating in the experiment. Participant submissions were then clustered by path. As ANOVA analysis requires a balanced data set, the first 64 submissions to each of the four paths were included in the final data set. The number 64 was chosen as it was the total for the path with the lowest number of submissions after the above data cleaning process. Thus, the final data set consisted of N=256 valid submissions to be included in the final data analysis. 50% of the participants were male, 48% female and 2% other. Ages ranged from 18 to 72, with a mean of 37.8 years and a median of 38 years. There was an approximately even spread between the ages of 18 to 50, with a slightly lower number of participants (20%) over the age of 50. Over 90% of participants report regularly getting their news from the Internet and 54.5% report using the Internet as a common source of news.

Statistical Power Analysis, Validity, and Rating Scales

A post-hoc test using G*Power [24, 25], revealed a >0.95 actual power of detecting an effect size of 0.275 with 256 submissions. An effect size of circa 0.2 is considered strong [18, 19, 99]. To increase validity the following four measures were taken. 1) Upon beginning the study, participants undertook two instruction tasks explaining how to use the experiment

²www.prolific.co

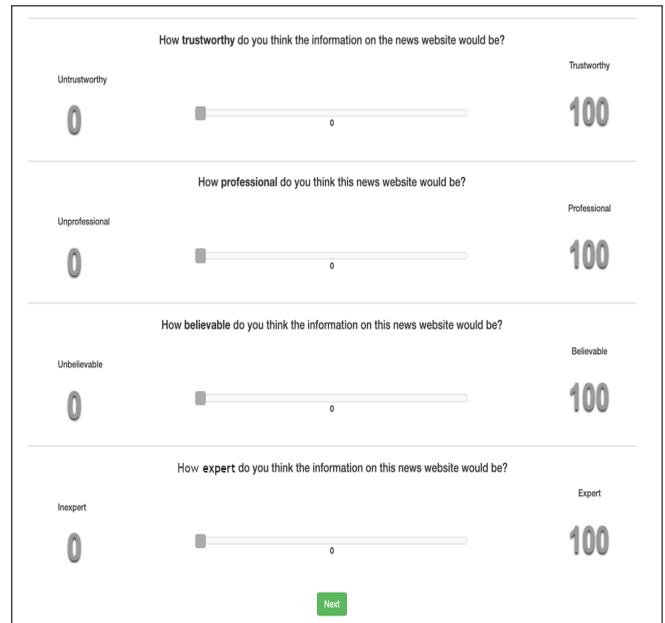


Figure 7. The four visual analogue scales used to measure credibility.

interface. 2) An attention task was included to measure diligence. 3) The experiment design included counterbalancing to reduce fatigue and carryover effects. Four visual analogue scales, from 0 to 100 and anchored with opposing terms such as "Trustworthy" and "Untrustworthy" were used to record participant ratings of the four individual dimensions, see Fig. 7.

PARTICIPANT INSTRUCTIONS AND INSTRUCTION TASKS

To begin with, participants were given an overview of their task, namely rating their initial impressions of the credibility of news website homepages, during their recruitment on the Prolific Academic crowdsourcing marketplace. Upon agreeing to partake in the experiment, they then had to undertake two instruction tasks to familiarize themselves with the experiment environment while they received their instructions. During the instruction tasks, participants were also provided with the following definition: "Credibility in news media for this research is defined as: The believability of a source, medium, or message". They were also provided with the following instruction: "You will be presented with a series of five news website homepages. Each homepage will appear for roughly 2.5 seconds before disappearing. When the homepage disappears, you will be asked four questions about your initial impression of that homepage. These questions will be answered using a slider with values which range from 0 to 100". The fifth news website homepage in the above instruction refers to the actual tabloid homepage they would be asked to rate after to benchmark results.

STATISTICAL ANALYSIS

A Two-Way Repeated Measures ANOVA using the Bonferroni correction for multiple comparisons was undertaken in SPSS 25. Due to the experiment design, the first two assumptions for ANOVAs were met. 1) The dependent variable, the measure of credibility, was a continuous interval type data. 2) The

independent variable consists of two within-subjects factors (homepages x distortions), where each within-subjects factor consists of two or more categorical levels. 3) A Shapiro-Wilk test ($p > .05$) for normality on the studentized residuals revealed no outliers in the data. This was also confirmed by inspecting the boxplots. 4) To test for normality, Normal Q-Q plots were generated for each series of homepage and distortion data. Although the values in each graph did not follow a completely linear line, they were distributed in a linear fashion with only minor deviations. As the sample size was so large and because ANOVA testing is generally robust enough to deal with small numbers of deviations, this assumption was satisfied. 5) Mauchly's Test of Sphericity (MTS) indicated that the assumption of sphericity had been violated for the two-way interaction, $X^2(2) = 214.086$ $p < 0.001$. Consequently, the Greenhouse-Geisser correction was reported as epsilon (ϵ) was < 0.75 . Mean, Standard Deviations and Standard Errors for each are shown in Table 3 and graphed in Fig. 8.

Main Effects

As expected, a statistically significant two-way interaction was not found between distortions and website homepages, $F(5.005, 310.322) = 1.175$, $p > 0.05$.

Simple Main Effects of Distortions

Although simple main effects of distortions would not usually be explored after finding no significant interaction main effect for the two-way ANOVA, the primary focus of this experiment was to compare each of the homepage/distortion combinations (D1 to D3) to their respective D0 control homepages. In SPSS, simple main effects are undertaken by performing multiple one-way repeated measures ANOVAs. Although an alternative option is to perform multiple paired samples t-test, the ability to apply the Bonferroni correction for multiple comparisons to the one-way repeated measures ANOVAs tests is preferred to increase the validity of the results.

The New York Times: MTS was met $p = 0.572$ with $X^2(5) = 3.845$. Since $p > 0.05$ there was no need to adjust for sphericity. The simple main effects of distortions for NYT was statistically significant, $F(3, 186) = 6.429$ $p < 0.001$. The mean difference of 12.44, between D0 and D3 was found to be statistically significant, $p = 0.010$. Thus, subjects who saw the NYT homepage with D0 (no distortion) rated its credibility higher by 12.44 points than subjects who saw the NYT homepage with Distortion 3. The mean difference of 14.84 between D1 and D3 was also found to be statistically significant, $p = 0.002$. Thus, subjects who saw the NYT homepage with D1 applied rated its credibility higher by 14.84 points than subjects who saw the NYT homepage with D3 applied.

Reuters: MTS was not met because the test result was statistically significant, $p = 0.042$ with $X^2(5) = 11.504$. Thus, the Greenhouse-Geisser adjustment is reported. The simple main effects for distortion for Reuters was statistically significant $F(3, 186) = 3.150$, $p = 0.032$. However, no pairwise comparisons showed any statistically significant results for Reuters. This was likely due to differences in sensitivity in the two tests.

The Guardian: MTS was met $p = 0.653$ with $X^2(5) = 3.303$. The simple main effects of distortion for the Guardian was statistically significant, $F(3, 186) = 4.356$, $p = 0.005$. The mean difference of 12.46, between D0 and D3 was found to be statistically significant, $p = 0.002$. Thus, subjects who saw the Guardian homepage with D0 (no distortion) applied, rated its credibility higher by 12.46 points than subjects who saw The Guardian homepage with D3 applied.

VOX: MTS was met $p = 0.123$ with $X^2(5) = 8.677$, since $p > 0.05$ there was no need to adjust further tests for sphericity. The simple main effects of distortion for VOX was statistically significant, $F(3, 186) = 7.958$, $p < 0.001$. The mean difference of 13.1, between D0 and D3 was found to be statistically significant, $p = 0.012$. Thus, subjects who saw VOX with D0 (no distortion) rated its credibility higher by 13.1 points than subjects who saw VOX with the D3 distortion applied. The mean difference of 15.42 between D1 and D3 was also found to be statistically significant $p = 0.001$. Hence subjects who saw Vox with D1 applied rated its credibility higher by 15.42 points than subjects who saw VOX with D3 applied. The mean difference of 12.96, between D2 and D3 was also found to be statistically significant, $p = 0.001$. Thus, subjects who saw Vox with D2 applied rated its credibility higher by 12.96 points than subjects who saw VOX with D3 applied.

TABLOID CREDIBILITY BENCHMARK

Participants were also asked to rate the credibility of the homepage of the tabloid the Sun³. All participants, from each of the four paths, saw the same homepage with no distortion. This was done to benchmark the results of the main experiment against a real tabloid. The results of this are plotted on a dotted line in Fig. 8. While these results from the four paths could have been plotted as a single combined Mean, it was decided to plot the Mean result from each of the four paths for increased transparency. As is clear from Fig. 8, participants rated the credibility of the tabloid homepage much lower than the other four website homepages. However, as the cumulative effect of the distortions increases, the initial impressions of credibility of the four website homepages decreases to approach that of a real tabloid.

It is obvious from Fig. 8 that even the most severe D3 distortions were not enough to fully reduce participants initial impressions of credibility to that of a real tabloid. Consequently, it could be argued that the experiment design did not go far enough and another level of cumulative tabloidization should have been applied. This would have likely resulted in a further decline in participants initial impressions of credibility for each news website homepage, further proving the deleterious effect of visual tabloidization. Alternatively, it is also possible that some of the participants recognised the Sun as none of its branding was removed, and rated its credibility lower because it is a real tabloid.

CREDIBILITY RE-EVALUATION

To confirm results, following the credibility rating task, participants were shown the four distorted website homepages they had previously rated and asked to select the most credible.

³www.thesun.co.uk

Table 3. Results of one-way repeated measures ANOVAs - simple main effects for distortions with Bonferroni correction.

| | D0 Control | D1 | D2 | D3 |
|----------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| New York Times | M 61.34 SD 20.83 SE 2.62 | M 63.74 SD 18.62 SE 2.35 | M 55.40 SD 21.84 SE 2.75 | M 48.91 SD 20.95 SE 2.64 |
| | F 6.429 p 0.010 | | | F 6.429 p 0.010 |
| | | F 6.429 p 0.002 | | F 6.429 p 0.002 |
| Reuters | M 57.55 SD 20.87 SE 2.61 | M 60.03 SD 20.62 SE 2.58 | M 58.56 SD 18.05 SE 2.26 | M 49.97 SD 23.47 SE 2.93 |
| Guardian | M 63.19 SD 20.50 SE 2.56 | M 55.59 SD 19.46 SE 2.43 | M 55.52 SD 20.00 SE 2.50 | M 50.73 SD 19.04 SE 2.38 |
| | F 4.356 p 0.002 | | | F 4.356 p 0.002 |
| VOX | M 56.29 SD 21.30 SE 2.67 | M 58.61 SD 19.96 SE 2.49 | M 56.15 SD 15.10 SE 1.89 | M 43.19 SD 21.35 SE 2.67 |
| | F 7.958 p 0.012 | | | F 7.958 p 0.012 |
| | | F 7.958 p 0.001 | | F 7.958 p 0.001 |
| | | | F 7.958 p 0.001 | F 7.958 p 0.001 |

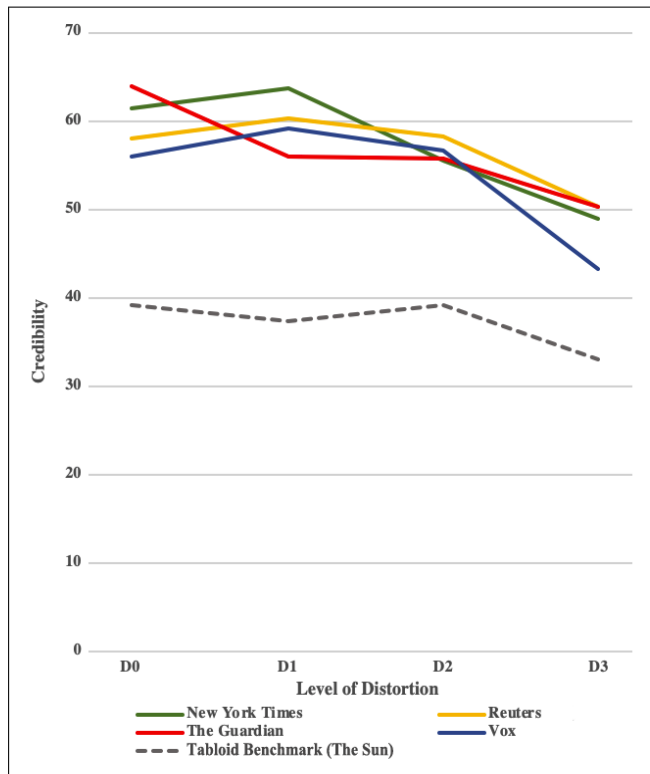


Figure 8. Graph of the mean credibility scores for each distorted news website homepage with benchmark tabloid scores.

They were then presented with the same four distorted website homepages they had previously rated and asked to pick the least credible. Homepages with either the D0 (no distortion) or the D1 (lowest level of tabloid distortion) applied were chosen as the most credible by 44% and 35% of participants respectively. In the second confirmation check, homepages with the D3 distortion (highest level of tabloidization) applied were chosen as least credible by 57% of participants.

RESULTS

The impact of increasing levels of tabloidization on the initial impressions of credibility can be clearly seen in Table 3 and Fig. 8. As the level of tabloidization increases, the initial impressions of credibility decrease. This experiment was set up under the directed hypothesis that this would occur. However, to test the hypothesis properly, a two-way repeated measures ANOVA was conducted with the aim of identifying if there were significant reductions in the level of credibility. Three of the four websites (NYT, Guardian, and VOX) showed a significant reduction in initial impressions of credibility from their D0 to their respective D3s. Furthermore, two of the websites (NYT and VOX), showed a significant reduction in initial impressions of credibility from their D1 to their respective D3s. Lastly, one of the websites (VOX) even showed a significant reduction in initial impressions of credibility from their D2 to their D3. While there were no significant reductions in initial impressions of perceived credibility between the distorted homepages of Reuters, there was a pronounced reduction in credibility ratings as the level of tabloidization increased. Based on these results, **the null hypothesis (H_0) is rejected, and the alternate hypothesis (H_A) is accepted, i.e. Increased tabloidization will decrease the initial impression of the credibility of a news website homepage.**

The results of this main experiment were also confirmed in a re-evaluation stage which showed that website homepages with lower levels of tabloidization were more likely to be considered credible, while those with increased levels of tabloidization were more likely to be considered less credible. The results shown in Fig. 8 clearly indicate a reduction in the initial impression of credibility as the level of tabloidization increases. Moreover, it suggests that if the tabloidization level of these websites were to further increase, beyond the extent of this experiment, each of the four news website homepages would likely be considered as indicative of a standard tabloid.

DISCUSSION

The results of this study show that the underlying supposition behind this research, that increased tabloidization of news website homepages would result in lower initial impressions of perceived credibility, was correct. This is a major issue for news agencies. As discussed previously, many news agencies have been under increasing pressure due to falling print publication sales which resulted in reduced advertising revenue. Consequently, many have invested heavily in their online presence. However, after many year-on-year increases in circulation figures for many news websites, they have also begun to level off or even drop [4, 85]. Consequently, many news website designers or online editors may be under pressure to

increase the number of visitors by making their news website homepages appeal to tabloid news readers.

Of course, as Esser notes, the tabloidization of news is a wider societal issue [23], and many aspects of tabloidization such as the overall composition of a newsroom – including which aspects of society the news agency decides to focus on, and editorial decisions about which stories should be written about – are out of the control of online editors and news website designers. However, the tabloidization of the content of the news goes hand in hand with its presentation. This study has focused solely on this aspect as it has been previously unexplored. This study shows that increased tabloidization reduces first impressions of credibility. Cassidy is unequivocal about the importance of credibility: "*journalism is built on credibility*" [11]. Positive first impressions are shown to be important indicators of website satisfaction and intention to use. Negative first impressions, including negative first impressions of credibility, reduce the likelihood that consumers who visit the website will find the information on it useful or informative and will also reduce the likelihood of their returning.

The results of this experiment are in line with the underlying theory in the domain. Currently, there exists at least ten Models, Theories, Frameworks or Schematics that are held to explain how users form judgements of credibility online [30, 31, 74, 97, 28, 60, 86, 36, 56, 61]. Many of these are based on the Dual-Process Models of Persuasion, namely the Elaboration Likelihood Model (ELM) and or the Heuristic Systematic Information Processing Model (HSM) [71, 12]. In short, these posit that users process information in a conscious and or preconscious manner. The HCI community needs to identify the visual cues and the heuristics used to form judgements of credibility on news websites. Long term, a set of measures or a framework should be developed to help news website designers monitor the trade off between attracting attention via the addition of tabloid style visual elements and judgements of credibility.

LIMITATIONS AND FUTURE WORK

Temporal Effects

The main limitation of this work is the fact that the experiment only focused on the impact of visual tabloidization on first impressions. Further study needs to be undertaken to understand the effects of prolonged exposure. It is unknown whether prolonged exposure to quality mainstream news content wrapped in attention grabbing visual tabloidization would overcome the initial reduction in perceived credibility.

Readership and Visit Duration

One questions which has yet to receive sufficient attention is whether the tabloidization of news websites increases readership and visit duration? Schönback has previously shown that tabloidization of print newspapers in Germany does not increase readership, and the "*audience does not appreciate subscription newspapers that mix information and entertainment*" [76]. However, a larger international study is required to see if the same is true for news websites. One pertinent difference is that consumers see tabloids and mainstream newspapers side by side on news stands. In comparison, consumers have to be

aware of and visit news websites. They are also rarely ever subject to side by side comparison. Researchers should also be careful to profile users. It may be that tabloidization may not increase or decrease readership or visit duration, but simply replace one cohort of consumers with another.

Advertising

Another area of future work is to investigate the impact on advertising of tabloidization with a particular emphasis on the social demographic profile of the users it may attract. Tabloid newspapers are traditionally read by those in a lower socioeconomic bracket. Is the same true for tabloid websites? Is it possible that tabloid news websites could attract some consumers in higher socioeconomic brackets because access is free, anonymous and private? Another consideration is that advertisers or advertising executives within the news agencies behind the websites are actively encouraging or contributing to tabloidization in an attempt to target certain groups of users or to increase revenues short term. Previous work has shown conflict between the business aspects and journalistic integrity in newspaper operation [2].

Effect on the News Agency

The effect of tabloidization of news websites on the news agency behind them also needs to be investigated. Fico has previously demonstrated that an increase in perceived bias in a news article has a negative effect on the credibility of the news agency behind it [26]. It is likely that tabloidization could have long term consequences for the reputation of a news agency that are not easily repaired. Another interesting direction for research would be to investigate how news websites could be made more attention grabbing, without engaging in tabloidization, and while maintaining high levels of credibility. Users could be encouraged to rate the credibility of news webpages using a platform similar to CredibleWeb to test variations in the design [41].

CONCLUSION

Credibility is of paramount importance to mainstream news journalism. This experiment has shown that as the level of tabloidization of mainstream news website's homepage increases, initial impressions of credibility decreases. While tabloidization may bring about short term gain for a news website in the form of increased circulation and an increase in visit duration, it can also bring long term pain, as users who want high quality news turn away from it. Such tabloidization is short-sighted and self-harming. Credibility is difficult to accrue and easy to lose.

ACKNOWLEDGEMENTS

This research was conducted with the financial support of Science Foundation Ireland under Grant Agreement No. 13/RC/2106 at the ADAPT SFI Research Centre at Trinity College Dublin. The ADAPT SFI Centre for Digital Media Technology is funded by Science Foundation Ireland through the SFI Research Centres Programme and is co-funded under the European Regional Development Fund (ERDF) through Grant Number 13/RC/2106.

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