



# How to Get More Likes, Shares and Comments? Factors Influencing User Engagement on Mainstream UAE News Websites

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## Abstract

The Internet as a media and communication platform is facilitating the proliferation of digital media content-channelled through websites, news apps designed for mobile devices-challenging the traditional print media and redefining journalism. More sophisticated news websites have been developed providing media users more fulfilling and interactive news experiences. In the post-Web 2.0 era of widespread use of mobile devices, tablets, and social media networks, media consumers have become active players in the news production processes. Media users react to news stories through comments, help in the news production process by sharing media content including photos, videos, text on social networks such as Facebook and Twitter. This study of four news websites – Gulfnews.com, TheNational.ae, Albayan.ae, Emeratalyoum.com – belonging to leading print daily newspapers of the United Arab Emirates, examines the factors that lead to user engagement such as social media sharing and comments on the news websites. Content analysis of 1637 news items collected from the four news websites showed that placement of news on the website, use of multimedia features, news origin and news topics have the significant impact on user engagement as in the form of social media shares, likes, and comments, while the use of hyperlinks has no effect. These findings are discussed along with the limitations of the study and suggestions for future research.

**Keywords:** Interactive journalism; User engagement; Social media sharing; Comments

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## Introduction

It was just two decades ago that mainstream newspapers began to experiment with web-based journalism. The *Star-Tribune* in the US and *The Daily Telegraph* in Britain were the major newspapers to launch websites in 1994 at a time publishers viewed the new medium as a threat than a platform that would complement the news products [1]. Within a year, however, more than 150 newspapers worldwide have established their presence on the web that was a huge increase from less than 10 in 1994. By mid-2000 more than 3,400 newspapers were on the web [1,2] and began a trend that catapulted digital journalism to the fore, forcing major print media outlets to fully embrace the new platforms and environment in content production, delivery and interaction. In the early days, news websites were very basic with mainly static web pages, very few interactive features and multimedia content. The developments in digital journalism, and user engagements

have been rapid with advances in communications technology and globalization of media within the last decade mainly due to “advances in computer technology and the rise of new forms of media, especially social media such as various blogs, Facebook, and Twitter” [3]. Today, most of the mainstream news websites also use multiplatform such as iPhone, iPad, Android applications on mobile and tablets for content delivery to engage more media users and attract larger traffic.

Multiple platforms, social networks, and interactivity characterize journalism in the digital age. Facebook, Twitter and Google, the largest digital media companies, “changed the news industry and the journalism practice inside out” (Alejandro, 2010, p. 10). News content today is packaged with rich media, options for social media interaction, user engagement, and virtual reality storytelling, thus making the traditional model of linear journalism redundant and irrelevant. Interactivity, as noted by Boczkowski [4] is one of the “salient capabilities of the new media”.

Over the past five years, news websites in the United Arab Emirates, like the rest of the world, have undergone evolutionary changes in design, functionality, and structure- to make them interactive and engaging websites. This research is the first major study on the UAE online news websites that examines the nature and features of interactive journalism and looks into the various factors that influence user engagement in the four news websites of the major UAE print newspapers – Gulf News, The National, Al Bayan, and Emarat Al Youm.

## Online Journalism in the UAE

The Dubai-based newspaper Gulf News, is the first newspaper to launch a news website-Gulfnews.com-20 years ago and it is ranked in the top 20 websites in the UAE by Alexa.com. A Forbes Middle East ranking of top online newspapers in the region shows that Gulfnews.com, Albayan.ae, Emaratallyoum.com and TheNational.ae are in the top 15 of a list of 41 news websites. The one-year research, ending on 31 August 2012, listed Gulfnews.com as the third top website followed by Emaratallyoum.com (8), Albayan.ae (9), and TheNational.ae (15). Egypt’s Ahram.org.eg, the online website of *Al Ahram* newspaper topped the list with 75.5 million visit [5]. In ranking the websites, Forbes used Google Analytics data and reviewed the Facebook, Twitter, YouTube, Google Plus and LinkedIn accounts of all the websites analyzing the levels of activity, number of followers and subscribers [6]. **Table 1** shows the website statistics of the four newspapers.

All the major UAE print newspapers have a great online presence with medium to high interactive level websites. The mainstream news websites have transformed tremendously with dynamic websites, social media integration, mobile apps to attract the younger media users. Most websites update frequently often with live coverage of major breaking news events; use photos, videos and interactive media; capitalize on social media platforms to reach larger audiences. Some websites have begun to use Facebook extensively with recently launched Facebook Live to bring live interviews to media users. Early adoption of new technologies and innovations by some news websites indicate a shift in the media ecosystem in the Gulf region and in the UAE- more and more people are accessing news content online, and through social media. Smartphones and tablets are now the most popular devices for internet access indicating that media users are consuming media on the go.

The UAE has the highest mobile phone penetration in the region and in 2014 more than 78% of the population used a smartphone [7]. Keeping abreast with these changes the news websites have also launched Apps for major mobile platforms such as

Android and Apple OS; optimized websites for mobile phones. User-Generated-Content is also a popular feature in some news websites. Social media platforms such as Facebook, Twitter, Instagram, YouTube and Google+ are widely used by the news websites to distribute and promote editorial content. In a country where internet penetration is high and smartphone use on the increase, making websites mobile responsive – where the website automatically changes layout to fit the screen -- is important. All the four websites have this functionality that would provide a better user experience.

The four news websites – Gulfnews.com, TheNational.ae, Albayan.ae, Emaratallyoum.com – analysed for this research belong to major daily newspapers in the UAE. Three of them are published from Dubai, while TheNational.ae is based in the federal capital Abu Dhabi. There are other daily newspapers (such as Al Khaleej) with strong online presence and online-native news websites such as Emirates247.com. The latter has a strong following on social media with 1.12 million Facebook likes (as of September 2016) and 309,000 followers on Twitter. Alexa.com ranks Emirates247.com as 88 in the UAE which is higher than the Thenational.ae (106), Emaratallyoum.com (109) and Albayan.ae (156). More recently websites such as Gulfnews.com and Khaleejtimes.com have started using Facebook Live, which was launched in April 2016, to cover news events.

Frequency of update varies among the news websites, with some providing up-to-the-minute coverage of major local and global news events. Breaking news events such as the Emirates Airline crash in Dubai in August 2016, the adverse weather that affected the country in March 2016 were extensively covered using live blogs. User generated content such as photos, videos and eyewitness accounts sourced from social media were widely used in breaking news coverage.

## Interactive Journalism – A Theoretical Framework

One of the defining characteristics of news production and consumption on the internet-based news media system is interactivity [4,8]. Internet-enabled mobile devices, personal computers, connected networks that empowered media users to interact and engage with the medium (websites), the message (editorial content), the producers (reporters, editors) and the public have redefined online journalism in the digital age. Noting the importance of interactive features in online journalism, Briggs [9] pointed out that “[t]he power of the Web comes from its interactivity”.

**Table 1:** UAE website statistics.

Website	Gulfnew.com	TheNational.ae	Albayan.ae	Emaratallyoum.com
Visits (millions)	77.11	16.89	15.45	26.04
Unique visitors (millions)	20.34	10.44	7.49	7.99
New visits (%)	30.68	60.76	47.66	29.91
Av. Visit duration	04:32	02:03	03:48	11:25
Social media exposure (%)	19.13	20.63	27.13	19.00

Source: Forbes Middle East. Top newspapers online in the Arab World 2012. Retrieved from <http://www.forbesmiddleeast.com/en/lists/read/1970/top-newspapers-online-in-the-arab-world/listid/31/page/1/>. The data is based on Google Analytics for the year ending 31 August 2012.

While the linear journalism that is inherent in the print medium disenfranchised the audiences in terms of engagement, the news websites and the numerous forms of digital news products within the internet media ecosystem today provide a high-level of interactivity never envisaged before the 1990s. The interactive news media ecosystem with its plethora of tools has turned passive media users to active media users as modes of participatory choices have increase [8].

A newspaper reader's feedback in the form of a letters to the editor might take several days to get published, though today media users can have their reactions shared instantly through comments to news stories or direct feedback to reporters and editors. Such interactive engagement in the form of a comments or contribution of information (text, multimedia etc.) is termed *conversational interactivity* [10].

The conceptualization of interactivity predates the World Wide Web when researchers looked at the human-to-human communication via computers through the lens of traditional sender-receiver model where the audience is passive. Tools such as emails, forums, online polls, were seen as interactive features as they "can help establish reactive and possibly interactive communication processes" [11]. Deuze who studied the "first generation" of news websites (1993-2001) noted three types of interactive options -- *navigational interactivity*, *functional interactivity*, and *adaptive interactivity*. Navigational interactivity helps users to move around the web pages through hyperlinked navigational bars and other directional links. Functional interactivity is provided through features such as links, email links while adaptive interactivity is attributed to personalization and customization of the website [12]. Looking at the technological dimensions, Stroud, Sacco and Curry [13] suggested two concepts -- *human interactivity* and *medium interactivity* where the former "involves the ability of people to engage with one another", (e.g. Email exchange between a reader and a reporter/editor) while the latter is the user engagement with the website where for example a user clicks a hyperlink within a story.

However, the technological developments since the mid-1990s reshaped the wider media environment and reconceptualization of the interactivity became necessary. The technological dimensions, empowerment of the audiences through networked digital devices necessitated a re-evaluation of interactivity dimensions. As social media such as Facebook, Twitter and Instagram have become important news production, sharing and participatory platforms, a new dimension to website interactivity has emerged. Mainstream news websites have an almost parallel platform on social media through official Facebook pages, Twitter and Instagram accounts. User engagement through these channels are higher in some situations compared with the official websites. Thus posting of comments and sharing of posts (via social media) by media users is a form of engagement that can be termed *social media interactivity*. This is the user action where media content (news story, multimedia) is shared on a social media platform, or leaves a comment on a news website's Facebook page. Social media interaction has a multiplier effect in disseminating and distributing content from websites and social media pages.

Given the enormous reach and connectivity of social media (Facebook with 1.5 billion users) and active engagement of media users in the share, consumption and interaction over the last decade has prompted some to see the social networks as a powerful environment vis-à-vis conventional journalism discourse. Dutton (Cited in Alejandro, 2010) see social media as the Fifth Estate (the press being the Fourth Estate) as "we are witnessing the emergence of powerful new voices and networks which can act independently of the traditional media" (p. 14). Therefore, social media share buttons have become an integral part of any news website as it is an important news promotion and distribution function to increase traffic.

Online comments to news stories published on news websites have become an important part of user-generated content that engages visitors to news websites. Participation in this process, where a user gives an opinion or information, is an active engagement compared to a passive media consumer. What drives media users to commenting includes "to express a personal opinion on the subject matter of the story" [14] or to give an "emotional response to the story" (Barnes, 2015, p. 818). The posting of comments at the end of news stories, where media users interact in discussions and expressions have become forums and thus an important part of the journalism discourse [15,16]. In some news websites users can also Like, Dislike, Share comments while comments can also be sorted by oldest, newest and most liked. These features make user engagement high.

With the various forms of interactive features available on news websites, this study aims to investigate what features can lead to more user engagement on the news websites, i.e. more sharing of the news on social networks and more comments. So, our first research question is:

*RQ1: What online features can bring more user engagement, i.e., likes, share, and comments?*

### News prominence

The prominence of a news event is determined by news values, which is a news selection framework the gatekeepers use in the editorial process to determine the newsworthiness of an event. A set of news values guides gatekeepers in determining selection, emphasis and placement of news. Galtung and Ruge [17] suggested a dozen factors that cause events to become news, which include threshold, frequency, intensity, meaningfulness, proximity, continuity, scarcity, reference to elite nations and people [18,19]. In the news selection and processing stages, journalists and editors use audience-oriented routines and frame the news and make certain aspects of the event more salient [20,21]. The news hierarchy on a front page of a newspaper or the homepage of a news website reflects to a great extent the news selection process, where news values such as impact, prominence, celebrity, relevance are the criteria used in the news judgment. News values are used in the selection of items for inclusion in the final news product and as a guideline for presentation of the items [18]. Shoemaker and Cohen [22] studied news coverage in 10 countries and the findings demonstrated that news values that are important and impactful were prominently covered in the

news. Research proved that display of news predicts readership in that the more dominant placement of news will receive more reader's attention and engagement on print media [23]. It can be applied to online news as well since the function of human eyes doesn't change over the different platform, therefore it is hypothesized that:

*H1: The more prominence of the news on the website, the more audience engagement on the news website.*

## Multimedia features

Multimedia elements such as interactive and information graphics are powerful visual tools in data journalism by simplifying complex stories and huge data troves. As noted by Lester "Infographics combine the aesthetic sensitivity of artistic values with the quantitative precision of numerical data in a format that is both understandable and dramatic" [24].

Highly interactive multimedia stories provide greater user engagements. The publication in 2012 by the Nytimes.com of *Snowfall: The Avalanche at Tunnel Creek* -- a multimedia story [25] provided a "compelling multimedia reading experience" that awards large viewership. The Snow Fall multimedia story that won a Pulitzer prize was seen as "a spectacular example of the potential of digital-age storytelling" used interactive graphics and video in the multimedia narrative of a deadly avalanche in Washington State [26].

Embedding of visual elements in a multimodal delivery of content can enhance a text-only journalism piece. Research shows that readers and media users pay attention when photos are used in print as well as online. In a newspaper or a webpage the use of visual elements notably photos, graphics and videos (online) in page design is so important as they are key to attract readers or media users making the visual element part of the Centre of Visual Impact [27]. If a CVI element is well placed in terms of size and location on a page, "when a reader opens the paper or magazine, or links to a website, one visual element should immediately attract her eye" [28]. As noted by Harrower and Elman [29] in today's visual culture, images get more traction than text and "if you want to convey information, photos can be as valuable as text. If you want to hook passing readers, photos are even more valuable than text" (p. 109). Research on the use of photos in news websites by Huang [30] shows that readers prefer visual homepages with multiple photos and thus "to catch readers' eyes with photos, online dailies should first make visual as many stories as needed" (p. 10).

With improved internet speed and connectivity, video has become an important multimedia element in online journal [31,32]. User engagement through comments or the quality of comments is high for multimedia features in news websites. Ksiazek [33], in a content analysis of comments and news stories on 20 news websites found that there was a positive correlation between the number of multimedia features and the number of comments.

A 2015 survey of college students in the US shows that they tend to view videos on the news sites more often than photo slideshows. The key motivation for them to view videos on news websites

were with others/realism" and "relaxation" photo slideshows gave them "realistic content," "relaxation," "interactivity" and "learning," [34]. Research also shows that stories with photos are more likely to be shared than stories without visuals. A 2014 study of articles shared on Facebook shows that on average 64% of those shared has at least one image compared to 28% without an image [35]. Thus, the following hypotheses are formulated:

*H2a, b, c: The more use of photos/illustrations/videos on the news on the websites, the more user engagement of the news.*

## Hyperlinks

In the context of online journalism, hyperlinking is an important feature that provides directional links within an outside specific platform, enhancing the user experience and engagement [36]. There are three types of hyperlinks – target links, relative links and external links where the first two provide links within the document and website while the latter directs users to external websites [37]. In this study of UAE news websites, we are looking to the three types of links – internal links, external links and related news story links.

Links can enhance and enrich the news story by linking to diverse but relevant sources and removes the burden from media user to browse different websites for information that would give the context to the story. Thus providing more links would make the user interaction with the website higher. Noting the importance and relevance of links, Maeyer [38] noted:

*"... links are second only to text in their ability to convey information and meaning to the user. What makes the DNA, the genes of online media and of the Internet in general, is of course the hypertext. Links are part of the Web writing. It's intrinsic. [Hyperlinks] belong to the language of the Web, as if they were part of the grammar... links seem consubstantial with the Internet".*

A research in 2003 that examined the homepages of 26 leading news websites from 17 countries found that hyperlinks have become a key feature of the websites, but were mostly limited to internal hyperlinks [39]. In explaining the preference for internal hyperlinks (that links editorial content within the news organization as opposed to outside), Tremayne [40] noted that the archived "material is being favoured over content that is off-site. This is just one example of preferred attachment" (p. 60). Clearly the earlier hyperlink studies have shown that internal hyperlinks were favoured perhaps to maintain users within the site as long as possible. In this study, related news stories play a similar role as internal links, which is linking to related news stories on the same website with an intention to keep users on the same website for a longer time. Therefore, we can hypothesize:

*H3a, b: The more internal links/external links, the more user engagement.*

*H3c: The more related news stories, the more user engagement.*

Whether online or print, news content is always the key factor affecting user engagement. Thus, the second research question is:

*RQ2: What kind of news gets more user engagement, i.e. likes, share and comments?*

## Local or international

Generally, for newspaper audiences in specific geographic locations, local/national news have more relevance than international news. A US research of most popular stories in online newspapers, based on user-online news use behaviour, shows that local and regional and national stories accounted for more than 98% of the stories while the rest was for international news [41]. Studies have always shown that local and national stories are widely followed compared to foreign news, but at times the latter has also trailed closely behind. A 2016 study shows more than 70% followed national and local news very closely, and 65% also followed foreign news with the same regularity [42]. When the foreign news is not related to the US, it is of least interest to the US news consumers [43]. As Hamilton [44] puts it the truth is that "Few people really care much about news from abroad" (p. 4). There is also the belief among news executives that "people aren't interested in [foreign] news unless it affects them personally", while space and time devoted to foreign news have reduced by 70% to 80% in the 15 to 20 years before the end of the 20<sup>th</sup> century [45]. This also indicates that foreign news is not a significant part of the news hole. Based on that, we propose that:

*H4: Local news gets more User engagement than nonlocal news.*

*H4a: Local news gets more social media share and likes than nonlocal news.*

*H4b: Local news gets more comments than nonlocal news.*

## News topics

The kind of news media consumers are attracted to vary from time to time. In the US, at times, crime news was a dominant theme over public affairs news. This preference was also attributed to the high crime rates between the 1960s and until the turn of the century [46]. Even when major international news events compete with local or national issues, topics that are directly related to the public dominate. While the developments in Eastern and Central Europe in the 1980s were followed by 28% of Americans, 35% were closely following the news about attempts to change the abortion laws which was seen as a divisive social issue [47]. A 10-year Pew Research into public attentiveness to news shows that natural and man-made disasters (45%) and U.S. military involvements (44%) were leading news issues followed by the public. While three-in-ten Americans followed business and economic stories, few people in the US paid close attention to stories on political or celebrity scandals or entertainment [48]. Some of the major news events that attracted greater public interest in the 10-year period included the San Francisco earthquake of 1989, the crash of TWA Flight 800 (1996) and the 1996 Presidential election outcome. Another long-term study spanning from 1986 to 2006 also show similar audience preferences with stronger interest on man-made or natural disasters. This was followed by economic and financial news; stories about war, terrorism, and social violence [49]. Another research on news topics, carried out by the American Press Institute in 2014, also shows similar results -- more Americans follow topics that were more relevant to them than news about

entertainment and leisure. The study finds that two-thirds or more follow news about the environment and natural disasters, about their local town or city, national government and politics, business and the economy, crime and public safety, foreign or international issues, and health and medicine [49].

Ksiazek [33] analysed 1379 stories and 333,605 user comments across 20 news websites and found that "certain political story topics exhibit more and higher-quality user comments" (p. 9). The 2016 US study shows that topics such as budget, economy, healthcare, intelligence agencies, government inefficiency, gun control, and op-ed stories (opinion) were the most engaged topics vis-à-vis user comments. Several studies from around the world have shown that political news stories garnered most comments [50]. Therefore, we come up with the following hypotheses:

*H5: User engagement is different towards news in different news categories.*

*H5a: Social media likes and shares are different towards news in different categories.*

*H5b: Number of user comments is different towards news in different categories.*

## Methods

Content analysis is the main research method employed in this study to investigate what factors influence user engagement in UAE news websites.

## Sampling newspapers

The official websites of the four leading UAE newspapers were selected for content analysis. Since Arabic is the official language and English is the commonly used language in the UAE, the sample include two English newspapers - *The National* and *Gulf News* and two Arabic newspapers - *Emarat Al Youm* and *Al Bayan*. **Table 2** shows the interactive features and options in the four UAE news websites.

## Unit of analysis

The unit of analysis is the news item, defined in general as a set of contiguous visual content elements including text, photos, videos, and illustrations [51]. Specifically, on the official news websites, it is a news update posted on the homepage. The first 30 news updates are coded following the visual order from left to right and up to down; 14 days are required to reach at least 300 news items for statistical analysis. Every other day in March, 2015 is selected according to a constructive day approach [51]. On some days, when news updates were not enough to reach 30, items of the next day were coded. Altogether, 414 news items were coded on theNational.ae, 353 from GulfNews.com, 450 from EmartatAlYoum.com and 420 from AlBayan.ae.

## The variables coded

Variables coded on each of the four newspaper websites are as follows:

**Dependent variables:** The dependent variable - user engagement - is measured by social media likes, shares and user comments.

**Table 2:** Interactive features and options in the four UAE news websites.

Website	Thenational.ae	Gulfnews.com	Emaratalyoum.com	AlBayan.ae
Social media plugins	✓	✓	✓	✓
Comments	✓	✓	✓	✓
Personalization	–	✓	–	–
Polls	–	✓	–	✓
App for Apple iOS	–	✓	✓	✓
App for Android	–	✓	✓	✓
App for Blackberry	–	✓	–	✓
RSS feed	✓	✓	✓	✓
Video	✓	✓	✓	✓
Photos	✓	✓	✓	✓
Interactives	(✓)	✓	–	–
Reporter email	✓	–	–	–
Related links in stories	(✓)	(✓)	(✓)	(✓)
Related stories	✓	✓	–	–
Related tags	✓	✓	–	–
Search	✓	✓	✓	–
Archive	✓	✓	–	–
Mobile friendly website	✓	✓	✓	✓
Printer friendly format	✓	✓	✓	✓

Data collected from respective websites and social media platforms in January 2016

✓ Consistently used/regular feature.

(✓) Appears occasionally.

“–” indicates Data not available.

The number of likes or shares of the four most popular social media platforms i.e. Facebook likes/shares, Twitter share, G+ share, LinkedIn share, was coded individually for each news item, and an aggregate variable named *Total social media share/likes* was generated later by adding the four individual numbers together. For user comments, the number of comments was simply coded for each news item. Note that to code the social media share/likes and comments, the coders are asked to code the news item at least 3 days after it was first published, so the news item can reach its maximum number of social media share/likes and comments.

**Independent variables:** The independent variables include variables related to online features of the news, i.e. prominence, multimedia elements, and hyperlinks, and variables of news content.

**Online feature variables:** Prominence is coded as two categories, top or non-top. Top news are defined as the highlighted news items at the beginning of the homepage. For example, on Gulfnews.com, top stories of the day are the ones on the top left corner of the homepage with photos slides.

Multimedia elements are coded by number of photos, illustrations, and videos that are used on each news item.

Hyperlinks are coded by number of internal/external links and related news stories of each news item.

**News content variables:** News Origin is the location where the news took place. It was recoded into two categories - local and non-local- in the data analysis.

News topic is about the topics of news, including 18 categories

which were adapted from Lynch and Peer [52]: politics, war and conflict, police/crime/courts/legal, natural disaster/accident, business/economics, sports, entertainment, science/technology, health/fitness/medicine, education, automotive, leisure/travel, environment/weather, religion, home/garden/real estate, food, fashion/beauty, others.

## Results

### Online features and user engagement on UAE news websites

To answer research question 1 which is about what online features can bring more user engagement, data analysis was conducted first to all four news websites and then to each news website. **Table 3** lists the percentage of news that has the specific online feature among all the news coded on that news website.

### News prominence

To test Hypothesis 1, Mann-Whitney U tests were run to determine if there were differences in user engagement – measured by number of social media share/likes and user comments -- between top news and non-top news. Distributions of each user engagement variables, i.e. Facebook share/likes, Twitter share, G+ share, LinkedIn share, total share/likes and user comments for top news and non-top news were similar, as assessed by visual inspection on all six variables. All social media shares/likes and user comments are statistically significantly more in top news than in non-top news except G+ share. Specifically, Facebook share/likes was statistically significantly more in top news ( $Mdn=14.50$ ) than in non-top news ( $Mdn=8.00$ ),  $U=336,010$ ,

**Table 3.** Percentage of news that has online features, social media shares/likes and user comments on each news website.

Percentage	TheNational.ae	GulfNews.com	Emaratalyouth.com	AlBayan.ae	Total	The Guardian	WP
	N=414	N=353	N=450	N=420	N=1637	350	350
Prominence (Top News)	55%	20%	30%	20%	32%	-	-
Photos	79%	46%	66%	90%	71%	-	-
Illustrations	2%	1%	2%	9%	3%	-	-
Videos	4%	2%	7%	9%	6%	-	-
Internal Links	20%	0%	4%	3%	7%	91%	78%
External Links	19%	0%	2%	1%	5%	28%	70%
Related Stories	96%	14%	100%	4%	56%	-	-
Facebook Likes/Share	80%	-	89%	95%	69%	-	-
Twitter Share	94%	-	96%	97%	75%	-	-
G+ Share	40%	-	55%	95%	50%	-	-
LinkedIn Share	39%	-	0%	66%	27%	-	-
Total Share/Likes	96%	47%	98%	99%	87%	-	-
Comments	5%	12%	33%	32%	21%	70%	97%

$z=5.27, p<0.001$ ; Twitter share was statistically significantly more in top news ( $Mdn=11.00$ ) than in non-top news ( $Mdn=5.00$ ),  $U=361,992.5, z=8.21, p<0.001$ ; Mean rank of LinkedIn share was statistically significantly higher in top news than in non-top news,  $U=314,193, z=3.51, p<0.001$ ; Total share/likes was statistically significantly more in top news ( $Mdn=40.50$ ) than in non-top news ( $Mdn=22$ ),  $U=350,343.50, z=6.81, p<0.001$ ; Mean rank of user comments were statistically significantly higher in top news than in non-top news,  $U=310,541, z=-3.32, p<0.001$ ; Therefore, H1 is supported, which means top news has more social media share/likes and user comments than non-top news.

## Multimedia Content

Spearman's rank-order correlation was run to test H2 which is about the relationship between the use of multimedia elements – photos (H2a), illustrations (H2b), and videos (H2c) -- and user engagement. The results showed that number of photos is significantly correlated with all six variables of user engagement including Facebook share/likes ( $r=0.24, p<0.001$ ), Twitter share ( $r=0.19, p<0.001$ ), G+ share ( $r=0.30, p<0.001$ ), LinkedIn share ( $r=0.16, p<0.001$ ), total social share/likes ( $r=0.23, p<0.001$ ), and user comments ( $r=0.06, p<0.05$ ). So H2a is supported.

Number of illustration is significantly correlated with all social media shares/likes, specifically, Facebook share/likes ( $r=0.11, p<0.001$ ), Twitter share ( $r=0.07, p<0.01$ ), G+ share ( $r=0.14, p<0.001$ ), LinkedIn share ( $r=0.13, p<0.001$ ), total social share/likes ( $r=0.10, p<0.001$ ), but it is not significantly correlated with user comments. H2b is mostly supported.

Number of videos is significantly correlated with all user engagement variables, including social media share/likes and user comments. Namely, Facebook share/likes ( $r=0.11, p<0.001$ ), Twitter share ( $r=0.13, p<0.001$ ), G+ share ( $r=0.10, p<0.001$ ), LinkedIn share ( $r=0.09, p<0.001$ ), total social share/likes ( $r=0.11, p<0.001$ ), user comments ( $r=0.15, p<0.001$ ). So, H2c is also supported.

## Hyperlinks

Regarding H3 which is about the correlation of hyperlinks,

including internal links (H3a), external links (H3b) and related news story links (H3c), on user engagement, Spearman rank order correlation results showed that internal links is significantly positively correlated to Twitter share ( $r=0.07, p<0.01$ ), total social share ( $r=0.06, p<0.05$ ), but negatively correlated with user comments ( $r=0.06, p<0.01$ ); external links is significantly positively correlated to Twitter share ( $r=0.05, p<0.05$ ), but negatively correlated with user comments ( $r=-0.07, p<0.01$ ). Related news stories are significantly and positively correlated with Facebook share/likes ( $r=0.18, p<0.001$ ), Twitter share ( $r=0.27, p<0.001$ ) and total social share/likes ( $r=0.19, p<0.001$ ), but negatively correlated with G+ share ( $r=-0.11, p<0.001$ ), LinkedIn share ( $r=-0.22, p<0.001$ ). So H3a, H3b, H3c are not fully supported.

To sum up, the results of the four UAE news website altogether show that online features, including prominent placement of news and use of multimedia elements such as photos, illustrations and videos can increase user engagement, i.e. social media shares, likes and user comments. However, the use of hyperlinks is not predictive on user engagement on UAE news websites (Table 4).

### Online Features and User Engagement by Each News Website

The same analysis was conducted to each news website as the four websites each has different emphasis in the use of online features.

### The National.ae

On theNational.ae, only 5% of the news has comments (Table 4), the maximum number of comments on one news item is 2. Therefore, the number of comments variable should not be an effective dependent variable in the analysis of the National. We use only social media share/like as the measurement for user engagement.

From Table 3, we can see that 55% of the news items in the sample are top news and 79% of news has photos; but only 2% news items have illustrations and 4% have videos, so H2b and H2c cannot be tested. As related news stories of each news item on the National is computer generated, H3c cannot be tested as well.

**Table 4:** Spearman rank order correlation coefficients for multimedia elements, hyperlinks, and user engagement for four UAE news websites.

Variables	Facebook Share/Likes	Twitter Share	G+ Share	LinkedIn Share	Total Share/likes	User Comments
Multimedia elements						
Photos	0.24*** (1637)	0.19*** (1636)	0.30*** (1637)	0.16*** (1637)	0.23*** (1637)	0.06* (1636)
Illustrations	0.11*** (1637)	0.07** (1636)	0.14*** (1637)	0.13*** (1637)	0.10*** (1637)	0.04 (1636)
Videos	0.11*** (1637)	0.13*** (1636)	0.10*** (1637)	0.09*** (1637)	0.11*** (1637)	0.15*** (1636)
Hyperlinks						
Internal Links	0.05 (1637)	0.07** (1636)	-0.01 (1637)	0.01 (1637)	0.06* (1637)	-0.06* (1636)
External Links	0.02 (1637)	0.05* (1636)	0.02 (1637)	0.05 (1637)	0.04 (1637)	-0.07** (1636)
Related Stories	0.18*** (1636)	0.27*** (1635)	-0.11*** (1636)	-0.22*** (1636)	0.19*** (1636)	0.03 (1635)

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$ .

A Mann-Whitney U test was run to determine if there were differences in user engagement between top news and non-top news on theNational.ae. Distributions of the user engagement variables for top and non-top news were similar, as assessed by visual inspection. User engagement was statistically significantly higher in top news than in non-top news for four user engagement variables, namely, Facebook share/likes are more on top news ( $Mdn=20$ ) than non-top news ( $Mdn=8$ ),  $U=24,018$ ,  $z=2.33$ ,  $p=0.02$ ; Twitter share are more on top news ( $Mdn=11$ ) than non-top news ( $Mdn=7$ ),  $U=24,074$ ,  $z=2.37$ ,  $p=0.02$ . Mean rank of G+ share is higher on top news than on non-top news,  $U=25,333$ ,  $z=3.86$ ,  $p < 0.001$ ; Total share/likes are more on top news ( $Mdn=43$ ) than non-top news ( $Mdn=22.5$ ),  $U=24,570$ ,  $z=2.78$ ,  $p=0.005$ . So, H1 is mostly supported, in other words, top news has more Facebook share, Twitter share, G+ share and total social media share/likes than non-top news.

Spearman rank order correlation was conducted to test Hypotheses 2 and 3 on the relationship of multimedia elements (number of photos/illustrations/videos), hyperlinks (internal/external links/related stories) and user engagement. The results showed that number of photos is significantly correlated with Facebook share ( $r=0.25$ ,  $p < 0.001$ ), G+ share ( $r=0.27$ ,  $p < 0.001$ ) and total social share/likes ( $r=0.23$ ,  $p < 0.001$ ), so H2a is partially supported. Regarding the hyperlinks, the National has the highest percentage of news which has hyperlinks, in that 20% of the news has internal links and 19% has external links. Only internal links is negatively significantly correlated with LinkedIn share ( $r=-.13$ ,  $p < 0.01$ ). Therefore, H3a and H3b are not supported.

In all, for theNational.ae, it is found that prominence and use of photos is the two online features that affect user engagement, in that topping the news and the more use of photos, the more user engagement, i.e. the more social media share and likes. User comment is inactive on the National, therefore invalid for the analysis.

### Gulfnews.com

For GulfNews.com, only number of total share and comments are available for dependent variable -- user engagement. 12% of news items have user comments, the maximum number of comments on one news is 25; 47% of news has photos. Only 1% of news has illustrations, 2% of news has videos. Therefore, H2b, H2c cannot be tested. Gulfnews.com has no internal and external links, so H3a and H3b cannot be tested. 14% of news has related news stories, they are hand-picked by staff (Table 3).

A Mann-Whitney U test was run to determine if there were differences in user engagement between top news and non-top news on Gulfnews.com. Distributions of the user engagement variables for top and non-top news were similar, as assessed by visual inspection. User engagement was statistically significantly higher in top news than in non-top news on both two available user engagement variables. Specifically, total share/likes are more on top news ( $Mdn=2$ ) than non-top news ( $Mdn=0$ ),  $U=11,871$ ,  $z=2.79$ ,  $p=0.005$ ; Mean rank of user comments on top news is higher than non-top news,  $U=11,570$ ,  $z=3.87$ ,  $p < 0.001$ ; So H1 is supported, in which the top news has more total social media share/likes and more user comments.

Spearman rank order correlation showed that number of photos is significantly correlated with number of comments  $r=0.29$ ,  $p < 0.001$ , and number of related news story is significantly correlated with user comments  $r=0.24$ ,  $p < 0.001$ . So H2a, H3c are supported respectively.

Therefore, we can conclude that for GulfNews.com, prominence and photos are factors that has impact on user engagement, specifically, top news got more user engagement; the more use of photos and related news stories, the more user comments.

### EmaratAlYoum.com

For EmaratAlYoum.com, 66% of news has photos, 7% has videos, 2% has illustrations, 4% has internal links, and 2% has external links; related news stories are computer generated. Therefore, only number of photos and videos can be included in valid analysis. For dependent variables, no LinkedIn share is recorded, therefore it is excluded from analysis as well.

A Mann-Whitney U test was run to determine if there were differences in user engagement between top news and non-top news. Distributions of the user engagement variables for top and non-top news were similar, as assessed by visual inspection. User engagement was statistically significantly higher in top news than in non-top news, specifically on two user engagement variables, namely, Twitter share are more on top news ( $Mdn=12$ ) than non-top news ( $Mdn=8$ ),  $U=26,589$ ,  $z=4.14$ ,  $p < 0.001$ ; Mean rank of user comments on top news is higher than non-top news,  $U=27,039$ ,  $z=5.40$ ,  $p < 0.001$ ; So H1 is partially supported, in which the top news has more Twitter share and more user comments than non-top news.

Spearman rank order correlation showed that number of photos are significantly correlated with G+ share ( $r=0.22$ ,  $p < 0.001$ ),

number of videos is significantly correlated with Facebook share/likes ( $r=0.12$ ,  $p<0.05$ ), Twitter share ( $r=0.13$ ,  $p<0.01$ ), G+ share ( $r=0.10$ ,  $p<0.05$ ); Total social share/likes ( $r=0.11$ ,  $p<0.05$ ); and user comments ( $r=0.18$ ,  $p<0.001$ ). So H2a and 2c is supported.

Therefore, we can conclude that for EmaratAlYoum.com, prominence, photos, and videos are predictable to user engagement, specifically, top news has more Twitter share and user comments than non-top news; The more use of photos, the more G+ share and the more videos, the more social media share, likes and comments.

### AlBayan.ae

For AlBayan.ae, only 3% of news has internal links, 1% has external links, and 4% has related news. So, H3 cannot be tested.

A Mann-Whitney U test was run to determine if there were differences in user engagement between top news and non-top news. Distributions of the user engagement variables for top and non-top news were similar, as assessed by visual inspection. All variables of user engagement were statistically significantly higher in top news than in non-top news, except G+ share. Specifically, Facebook share/likes are more on top news ( $Mdn=222$ ) than non-top news ( $Mdn=59$ ),  $U=20,118$ ,  $z=6.04$ ,  $p<0.001$ ; Twitter share are more on top news ( $Mdn=25.5$ ) than non-top news ( $Mdn=12$ ),  $U=20,951$ ,  $z=6.88$ ,  $p<0.001$ . LinkedIn share is higher on top news ( $Mdn=4$ ) than on non-top news ( $Mdn=2$ ),  $U=18,358$ ,  $z=4.37$ ,  $p<0.001$ ; Total share/likes are more on top news ( $Mdn=253$ ) than non-top news ( $Mdn=77.5$ ),  $U=20,564$ ,  $z=6.48$ ,  $p<0.001$ . Mean rank of user comments on top news is higher than non-top news,  $U=15,683$ ,  $z=1.97$ ,  $p<0.05$ ; So H1 is supported, in which the top news has more social media share/likes and more user comments than non-top news.

Spearman rank order correlation showed that video is significantly positively correlated with LinkedIn share ( $r=0.12$ ,  $p<0.05$ ) and user comments ( $r=0.11$ ,  $p<0.05$ ). So H2c is supported.

In all, for AlBayan.ae, prominence and use of video are related to user engagement, in which top news has more social media share/likes and more user comments than non-top news; The more use of videos, the more social media share, likes and comments.

### News content and user engagement

Research question 2 is about what kind of news gets more user engagement, i.e. likes, share and comments. **Appendix A** showed the top liked, shared and commented news with their origin and category on all four news websites. For Research question 2, all four websites were included in data analysis.

### News origin

H4 is about the impact of news origin on user engagement. As news origin was re-coded into two categories -- local or non-local, Mann-Whitney U tests were run to determine if there were differences in user engagement between local news and non-local news. Distributions of the user engagement variables for local and non-local news were similar, as assessed by visual inspection. User engagement was statistically significantly

higher in local news than in non-local news on three variables, specifically more Facebook share/likes on local news ( $Mdn=11$ ) than on non-local news ( $Mdn=7$ ),  $U=294,479$ ,  $z=-2.21$ ,  $p=0.027$ ; more Twitter share on top news ( $Mdn=7$ ) than on non-top news ( $Mdn=6$ ),  $U=283,155$ ,  $z=-3.40$ ,  $p=0.001$ ; more total share/likes on top news ( $Mdn=29$ ) than non-top news ( $Mdn=22$ ),  $U=287,253$ ,  $z=-2.96$ ,  $p=0.003$ . Therefore, H4a is supported, in that local news has more social media share than non-local news. But no difference was found on user comments.

### News topics

H5 is about whether user engagement vary on different news topics. Kruskal-Wallis test was conducted to determine if there were differences in user engagement between different news topics. Distributions of user engagement score of all six variables were similar for all groups, as assessed by visual inspection of a boxplot. Median user engagement number of all variables were statistically significantly different between the different news topics, specifically, for Facebook share/likes  $\chi^2(17)=81.626$ ,  $p<0.001$ ; Twitter share  $\chi^2(17)=51.476$ ,  $p<0.001$ ; G+ share  $\chi^2(17)=44.560$ ,  $p<0.001$ . LinkedIn share  $\chi^2(17)=50.736$ ,  $p<0.001$ ; total share/likes  $\chi^2(17)=87.217$ ,  $p<0.001$ ; user comments  $\chi^2(17)=71.599$ ,  $p<0.001$ . So both H5a and H5b is supported in that user engagement including social media share/likes and user comments vary on different news topics.

## Conclusion and Discussion

The United Arab Emirates is one of the leading countries in the Gulf and Middle East region in terms of Internet connectivity and social media use. The key findings of this research reflect that various features of interactivity have been applied on news websites in the UAE. Audiences of mainstream UAE news websites use social media share, such as Facebook, Twitter, Google+, LinkedIn etc., as well as comment function to engage with online news content.

In exploring the factors that influence user engagement on news websites, the study found that editorial positioning of news stories influence user engagement as all social media shares/likes and user comments are statistically significantly higher on top stories than on non-top ones except G+ share. Given the widespread use of social media such as Facebook and Twitter in the UAE [53] compared to that of Google+, the insignificance of Google+ share is not surprising. Users are more active engaging in Facebook and Twitter than other social media platforms in interacting with news on websites. It proved that the mechanism that visual prominence catches user attention not only works in print media but also online. The more the changes in the technology, the more the gatekeeping process of news production remains the same on official news websites [20,21].

Making a news story visually appealing through the use of multimedia content (photos, videos, illustrations) is important to attract media users. The findings of this research show that the presence of photos, videos, illustrations on the websites can have a positive relation with user engagement is consistently supported by previous studies [30]. This calls for, online news

websites and content producers to innovate and invest in more multimedia content and features to increase traffic and user interaction. The use of multimedia in UAE news website are comparatively low, especially in terms of the use of illustrations and videos. Any effort in increasing these features would have a multiplier effect as studies show increase in multimedia content is positively correlated to comments [33].

Hyperlinks turn out to be an ineffective factor in predicting user engagement on all four UAE news websites. This can be explained by the inactive use of hyperlinks with news stories in the UAE news websites. For example, TheNational.ae being the most active user of hyperlinks among the four news websites (20% internal links and 19% external links), the percentage of news with hyperlinks on it is still much lower than that of other world's leading newspapers (**Table 3**). To compare and investigate hyperlinks and its relationship with user engagement, we examined the hyperlinks and user comments in two world leading newspapers – the TheGuardian.com and Washingtonpost.com. 350 news items are coded in each newspaper using the same methods as described earlier. For the TheGuardian.com, 91% of the news has internal links, 28% of news has external links; For Washingtonpost.com, 78% has internal links and 70% has external link. Percentages much higher than those of TheNational.ae. Further, a significant positive correlation was found between hyperlinks (including both internal and external links) and user comments for both the two news websites ( $r=0.19$ ,  $p<0.001$ ), a hypothesized relationship which is missing on the UAE news websites due to the inactive use of hyperlinks. Given that hyperlinking is one of the important features in online journalism [36], maximisation of hyperlinks in the news story will further enhance user experience and user engagement for the UAE news websites.

When the websites are examined individually, certain key interactive features, such as illustrations, videos, user comments, LinkedIn share, appear to be very minimal or non-existent. Thus, many online features turn out to be ineffective in predicting user engagement on individual website.

In terms of what kind of news get more user engagement, the study found that the origin of the news plays a role, in that local news get more social media share/likes than non-local news; However, news origin does not affect user comments. The fact that people would be more engaged to local news than non-local news is consistently supported by previous studies [41-44]. Due to the nature of social media, one would be more likely to share local news that is more relevant to people in their social network, with an expectation to bring more attention and interaction. On the other hand, the ineffectiveness of news origin on user comments is mainly due to the limited number of user comments on the UAE news websites. Although all the UAE news websites studied for this research have features for users

to submit comments, comments published are few. For example, theNational.ae only has 5% of news with comments, and the maximum number of comments on one news item is only 2. For gulf news, 12% of the news items have user comments, the maximum number of comments on one news, which is entitled "Couple faced with Dh200,000 hospital bill for premature twins born in Dubai", is 25. This is the news that received the highest comments among all four websites. Comments are mostly on inquiry of how to help, how to donate, etc., showing a caring and heartwarming community. For EmaratAlYoum.com, 33% of news has comments, the highest number of comments is 16. Albayan.ae has 21% of news with comments, and the highest number is 17. In comparison, the Guardian has 70% of news with comments, and the maximum number of comments on one news is 4294; Washingtonpost.com has 97% of news with comments, and the highest number is 5000. We can see there is a huge gap in the application of user comments between UAE news websites and world's leading newspapers' websites. As all the websites have options for commenting, and online media users can send in comments after registering, a same procedure as required by the TheGuardian.com and Washingtonpost.com, the readers are still not active in commenting in news stories on UAE news websites. Self-censorship and culture maybe two of the reasons behind the inactive use of the comment. Future studies and qualitative data are needed to explore and explain the gap.

The findings also show that news topic has an impact on user engagement. Some news topics will get more social share/likes and user comments than others. Even though our current data is not appropriate for pairwise comparisons, the descriptive analysis of the top shared, liked and commented news on each social media platform of all four UAE news websites provide an idea of what news topics get most user engagement. From **Appendix A**, we can see a pattern that news about political leaders and royal families of the UAE and sports get most social media shares/likes; News in two categories-police/crime/courts/legal and natural disasters/accidents-get most user comments; And news on business and economics get most LinkedIn shares. More effective methods should be developed to find out what topics can attract more user engagement online.

The study provides an overview of the online journalism in the UAE, especially the interactive features on news websites and its impact on user engagement. As a country with high internet connectivity and a social media-savvy population, the UAE news websites are well-placed to fully exploit the potentials in digital journalism to attract more social media likes, shares and comments from the audience.

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