

The Egyptian Blogosphere: A Counter-Narrative of the Revolution

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ABSTRACT

In this paper we investigate the role blogs played within the context of the Egyptian revolution of early 2011 using blog data authored between 2004-2011. We conducted topic modeling analysis to gain a longitudinal view of the interaction of societal, personal and revolutionary blog topics over this period. Furthermore, a qualitative analysis of blog posts during the period that bracketed the political uprising revealed Egyptian bloggers' concerns. Reporting events and supplying commentary provided bloggers with a means to voice dissent against institutionalized power represented by the government-controlled media. In short, blogs reveal a counter-narrative to the government-supplied version of events in Egypt during the 18-day uprising. These narratives offer rich documentation of how blogs, and perhaps social media more generally, can be utilized by individuals operating under repressive conditions.

Author Keywords

Blogs, topic modeling, counter-power, counter-narrative, socio-political uprising, empirical study, Middle-East and North Africa (MENA).

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

January 25, 2011 marked the first day in a series of protest demonstrations across Egypt that led to the resignation of then-president Hosni Mubarak on February 11, 2011. Many mainstream news outlets reported the use of Information and Communication Technologies (ICTs) by Egyptians [3]. Utilizing such technologies to support sociopolitical movements is not new; several movements have taken advantage of this means of disseminating information and gathering support from international observers [20].

Studies addressing the role of social media in sociopolitical movements have generally focused on cultures other than

those of the Middle-East and North Africa (MENA) region where Egypt is located [3]. In fact, a decade ago scholars claimed that ICT would not be used with great success to challenge the government's power in the country or the region [cf 14]. Therefore, the Egyptian revolution provides an opportunity to study the use of social media as a means to challenge the power of an authoritative government.

As Faris [15] notes, organizing political opposition in Egypt was a difficult and formidable task. The Egyptian government routinely repressed participation in protest demonstrations through violence and intimidation. Protesters often suffered beatings, arrests, and other forms of rights abuse by authorities [15]. The Mubarak regime also constrained political dissent through the control of Egyptian media [14, 17].

Despite repression, Egyptians utilized blogs as platforms for free speech, in which opposition to Mubarak's authoritarian regime was gradually fostered, legitimized and organized. By adopting and combining various social media, political activists were able to circumvent traditional platforms of communication. In doing so, they were "creating a kind of amorphous network that [would] be impervious to anything but an all-out assault by the state" [15].

Under these circumstances, we believe blogs were valuable tools during the 2011 uprising. Our research was motivated by a desire to understand the revolution from the perspective reflected by Egyptian bloggers. We focused on how blogs were used by Egyptians in the context of the revolution, specifically analyzing content posted during the time frame of December 1, 2010 - February 28, 2011. We find that blogs were used to report and discuss the events that took place during the uprising and through this we discovered the construction of a *counter-narrative* that challenges the dominant, state-controlled narrative in Egypt.

RESEARCH CONTEXT: ICT, EGYPT AND THE UPRISING

Information and Communication Technologies (ICT) have been used to launch and conduct various sociopolitical movements that have had either a global (e.g. globalization) or local (e.g. against local government) focus e.g. [6]. Our study of the use of blogs during the Egyptian uprising builds on these studies but focuses more on investigating its

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use by individuals during a period of unrest rather than its use by a group to launch or maintain a movement.

Previous research into Internet use has typically focused on women's movements, anti-World Trade Organization movements, and many others' use of ICT over time [19, 20]. The use of the Internet by the Zapatistas movement in the 1990's is perhaps the study most comparable to that of the Egyptian uprising and is considered the most widely reported [20, 12]. However, this movement occurred prior to the proliferation of several types of social media, including blogs. Furthermore, previous research of the use of ICTs typically did not include investigating individuals' use of such technology within the MENA region during a revolution.

Some have discredited the possibility that access to such technologies could play a role during an uprising in the MENA region [14]. Hosni Mubarak maintained firm control of the dissemination of information to Egyptians through state-run media. Even independent media publications—not permitted until 2000—were heavily censored by state authorities [17, 2]. The growing numbers of ICT users, however, were fundamentally changing how information was disseminated despite the Mubarak regime's harsh and sometimes violent repression of online communication. Egyptians connected by ever-growing networks became active participants in the creation, distribution, and consumption of information and ideas. Thus, political elites could no longer effectively control the supply of information that began to emerge from blogs of young (and often unemployed) Egyptians [13, 15].

The emergence of blogging in Egypt around 2004 is considered closely linked with the Egyptian Movement for Change (often referred to by its slogan, *Kefaya*, meaning "enough" in Arabic) [1, 21]. The *Kefaya* members and supporters communicated information, publicized news, mobilized events and posted political platforms through ICTs, tactics never before seen in Egyptian politics [4]. Notably, the *Kefaya* movement utilized bloggers to spread its ideas of democratic political reform and contribute to its efforts of documenting human rights abuses by posting videos and photographs on their blogs [21].

Such activities were not limited to groups. For example, in 2006, a blogger posted an eyewitness account describing the sexual harassment of a group of women while police stood by and watched; another blogger backed up the account with photographs and video posted on his blog [1; 18]. As oppositional media intensified and became visible to an increasing number of citizens, Egyptian authorities reacted by attempting to repress its users and restricting media freedom [1, 9].

BLOGS AS A MEDIUM FOR COUNTER-POWER?

Led by international media, the Egyptian revolution sparked discussion about the power of social media and its utility as a catalyst for sociopolitical change [3]. Recognizing that social media have played a significant role in other political

contexts, we chose to examine how blogs were used in particular during the 2011 revolution.

Manuel Castells has written extensively on the power of social media to affect society [7, 8]. According to Castells, networked communication and social media are fundamentally transforming relations of power. Castells suggests that dominant state actors, institutions and the power they exercise over the public sphere of communication are undergoing a "crisis of legitimacy." Castells observes that modern power relations, especially those linking governments and their citizens, are structured around control of the public sphere in part through control of vertical, broadcast-oriented communication mechanisms. He further argues that the failure of state institutions to evolve along with changing norms of civil society is resulting in the transformation of the public sphere by the masses. By adopting, aggregating and developing new forms of social media, individuals have greater ability to exert what Castells refers to as "counter-power", i.e. resistance to extant, institutionalized power relations.

Through self-generated, self-published content such as that enabled by social media, Castells maintains that citizens can challenge institutional power in two ways. First, political expression introduces modifications and new codes into established networks. A simple example is when YouTube videos capture politicians in "off-camera" moments in order to broadcast slander. This challenges the domination of formal political speeches broadcast by mass media. Second, power can be challenged by preventing communication networks from being controlled by institutions that support authority. This might include, for example, the posting of antigovernment sentiments on social media websites, which constitutes an expression of individual opinion that is often difficult or impossible through traditional broadcast media. As such, "mass self-communication" contributes to a new public space where social actors can exercise autonomy and promote change in ways that were previously impossible.

Others describe how ICT has dramatically reduced the costs and barriers to informational resources, altering the nature of power and increasing its diffusion [11, 15]. For example, female Internet café patrons in Cairo report feeling empowered by the ability to expand their social networks and increase awareness of sociopolitical realities outside of Egypt [24]. By facilitating cost-effective mobilization and secrecy to bypass the state, social media are counter-mediums to traditional media outlets [12].

How might blogs be a mechanism of wielding counter-power? As a mode of communication, blogs are neither dependent on nor necessarily obedient to public authorities like mainstream media. Prior to widespread use of social media, state-run media and a limited number of independent media controlled the dissemination and content of information in Egypt. However, with the emergence of social media, information and political speech are no longer

confined to this narrow set of gatekeepers. Unlike micro-blogs, which impose length limitations, blogs allow for the construction of narratives. In this paper we investigate whether Egyptian blogs conveyed counter-power during the uprising, and, if so, what form that counter-power took.

METHOD

We use both quantitative and qualitative methods to gain insight into the role that the Egyptian blogs played during the revolution in 2011. As the revolution in early 2011 had origins that began years earlier, to track the relation of blogging with Egyptian political events would involve conducting a longitudinal analysis of blogs. To analyze such a huge volume of blogs using only qualitative methods would be a formidable task. However, quantitative methods can be used to provide an overview of blog trends. This approach is complemented by qualitative methods, which can provide rich descriptions of the data. We first describe our analysis using topic modeling, a text-based analysis method which enables us to analyze a large corpus of blog data longitudinally without a priori assumptions about the content. Topic modeling, in turn, reveals themes in blogs and their shifts over time. This enables us to then hone in on particular time points or topics and use qualitative methods for further analysis.

AN ANALYSIS OF THE EGYPTIAN BLOGOSPHERE

To collect our blog sample, we used an existing aggregator blog, *Omraneya*, which provides a curated index of more than one thousand Egyptian blogs. The aggregator indexes posts and enables readers to follow new posts minutes after they have been published [13]. A blog aggregator presents the most recently published items from several sources and automatically displays new posts as collective attention fades over time. The *Omraneya* site was cited as a reliable index of the Egyptian blogosphere by others in previous work. For example, Fahmi [13] utilized *Omraneya* and confirmed the authenticity of the indexed blogs. Authors of the *Omraneya* site reported that they provide “*free hosting space and free aid developing a website for any cause we find worthy or interesting and for any speech that is censored or prosecuted in Egypt.*”

We used a crawling application that collected each post in each blog hosted on Blogspot (a popular blogging service operated by Google) and indexed by the *Omraneya* Egyptian blog aggregator. We crawled all posts for each blog indexed by the aggregator, and the crawler application collected more than 18,000 individual posts spanning September 2004 to May 2011. To analyze the large corpus of text containing the indexed blog posts, we used topic modeling to generate insights about trends in the content of the Egyptian blogs over time.

Topic modeling, a form of natural language processing, is a generative probabilistic modeling technique that finds co-occurrences of words across a collection of documents [5]. These co-occurrences, referred to as topics, are generated without any a priori knowledge about the content of the documents. The topic modeling software is fed a collection

of documents and generates two outputs: a distribution of words in each topic, and a distribution of topics in each document. These results can be used to visualize or otherwise describe the documents in the collection.

Although the results generated by topic modeling are statistical co-occurrences of words, a core assumption of topic models is that these groups of words generally relate to the semantic content of documents [10]. The formal, quantitative definition of topic that is employed in topic modeling allows the automation of quantitative analysis in substitution of other manual processes such as coding. This is particularly significant because the sheer quantity of material to be coded would make such a task nearly impossible by hand.

In our study, we used an individual blog “post” as a “document” for the purposes of topic modeling. Of the posts containing text, 9,597 were in Arabic, and 6,153 were in English. We could not assume that Arabic and English posts convey the same topics, so we treated them as separate corpuses for the purposes of topic modeling. As this method looks for statistical co-occurrences of words, both corpuses and topics, in Arabic and English, were disjoint sets, so while a single document can and often contains a distribution of topics rather than a single topic, posts containing English topics will only contain other English topics, and posts containing Arabic topics would contain only other Arabic topics, making a separate analysis more appropriate. Translation of both corpuses into a common language was not an option both due to the lack of acceptable automated tools and the editorial issues involved in the translation of foreign languages.

A subset of 1,026 blog posts was published between the dates of December 1, 2010 and February 28, 2011, dates that bracket the recent revolutionary activity in Egypt, which began in early January and culminated with the toppling of Hosni Mubarak’s government on February 11, 2011. To focus our analysis on the Egyptian uprising, we selected these posts for further examination with topic modeling.

The Egyptian Blogosphere: years 2004-present

Arabic blog posts consist of blogs written with the formal Arabic language (Arabic is the official language of Egypt) and those written with the Egyptian dialect (spoken by Egyptians in their everyday life) [23]. As the Egyptian dialect is a variation of the formal Arabic and uses the Arabic characters in its written form, it is not possible to distinguish between the two using topic modeling.

Arabic Blogs

Our Arabic topic-modeling corpus contained 9,597 documents published between Sep 2004 and Aug 2011. The topic modeling software generated a list of topics, translated, and shown in Table 1.

As Table 1 indicates, topic modeling does not always generate sets of words that correspond clearly to

analytically determined topics or subjects. However, a number of the topics did correspond to real-world topics. We read each grouping of words and hypothesized about possible thematic associations, and then cross-referenced these with a random selection of documents that the topic modeler indicated as containing the topic in question, empirically verifying the validity of the themes. We then associated the topics with the themes.

	Topics
T1	inside pass sex front husband man
T2	Politics Israel people America Arab Egypt regime Egyptian
T3	Land people generous knowledge Muslim Islam
T4	Distant little I-know yours moment speak heart something
T5	Year many talk print want maybe I-know
T6	Full crazy serve program Arab site Egypt share
T7	Game prince league overcome Mohammed Egypt Abu
T8	Speak truth more your think picture book person
T9	Correct seek small children illness way pictures big
T10	Mubarak security election group council constitution doctor

Table 1. List of translated Arabic blog topics, 2004-2011

Four coders identified topics 2 and 10 as being concerned with political issues, with topic 2 referring to foreign relations and 10 referring to domestic issues. The presence of the terms “constitution,” “election,” and “Mubarak” led us to identify the latter as most relevant to “revolution”. Topics 4 and 5 were associated with documents containing self-oriented language, such as “I know,” “I want,” and “I talk,” and so we labeled these “personal topics.” The coders could not identify a clear pattern in the content of the posts contained in the remaining topics and consequently, we did not assign them a label.

Topic modeling enabled us to look at the trends of topics over time. Figure 1 shows the percentage of blog posts in any given month that our software indicated as containing one of the topics we designated as pertaining to a political, personal or revolution theme. It is important to note that the topics were not mutually exclusive within a given post—each document could contain more than one topic. Dealing with this data in percentages enabled us to better see macro trends in topic prevalence, as the number of Egyptian blogs increased significantly in the period studied, corresponding with an increase in Internet usage in the country.

Using the topic modeling analysis on the Arabic blogs, we found a strong inverse relationship between the occurrence of personal, self-oriented posts, and posts about political issues. We also found that over time, Egyptian blogs became increasingly political in nature, suggesting an increasing use of this online medium for airing counter-governmental narratives.

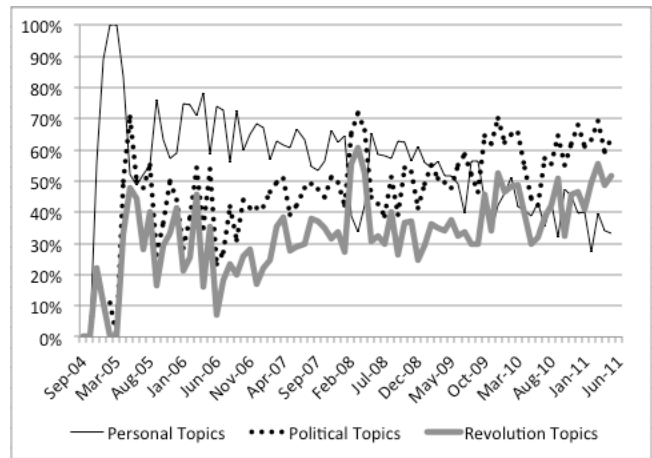


Figure 1: Percentage of Arabic posts containing topics by month

Fig. 1 shows that between 2006 and 2011, the percentage of posts containing personal topics steadily decreased from 65% to about 35%. During the same period, the percentage of posts containing revolution-relevant topics constantly increased, from about 15% to just over 50%, perhaps suggesting that politics and the regime were very (and increasingly) important topics in Egypt during these past seven years. Castells [8] notes that “most blogs are of personal character,” and that this type of mass-self communication is more akin to “electronic autism”—the exposition of personal experiences rather than attempts to galvanize others—than to the actual communication he identifies as integral to counter-power.

We found it particularly interesting that around the time of the uprising, there was an inverse relationship between posts that dealt more with revolutionary issues, and those that contained personal or self-oriented language. This is worthy of attention in light of the fact that the distribution of topics is not mutually exclusive—a given document often contains more than one topic. This trend also raises questions about the reasons for the decline in self-oriented language.

It is possible that Egyptian bloggers and perhaps even the Egyptian people writ large grew increasingly concerned with politics, or that politically-minded Egyptians increasingly used blogs as an outlet for expression. In addition, the prevalence of political speech in blogs stands in contrast with the observed suppression of political speech in the public arena in the years preceding and immediately prior to the revolution. In either case, there is an apparent change in the motivations of Egyptian bloggers over time. The blogs’ shift from particularism and “autistic” narratives [8] towards universalism and more societally-oriented narratives seems to suggest that blogs increasingly served a counter-power role particularly during the time of the uprising.

	Topics
T1	egypt arabic islam riddler blog book muslim megabyte
T2	israel intelligence israeli cia war pakistan india military
T3	cairo dance food water night cup lovely add
T4	women human rights society law government country
T5	city house children street family left told gaza
T6	egypt egyptian political president mubarak elections regime democracy
T7	heart health body calories blood weight energy medical
T8	information chinese office service based system national group
T9	think love want things say feel friends thing
T10	egypt egyptian mubarak army revolution security police news

Table 2. List of English blog topics, 2004-2011

English Blogs

Our English corpus consisted of 6,153 documents for the data spanning Sep 2004 to May 2011. The topic modeling software revealed the topics shown in table 2.

Again, four coders identified topics broadly related to political and personal issues. Topic 4 dealt with issues of society, including human rights, women’s rights, and law. We identified the content of posts containing topic 9 as personal or “self-oriented,” similar to the Arabic. Topics 6 and 10 concerned Mubarak’s regime, the goals of protest and uprising, and the events of the revolution; these were labeled as “revolution topics.”

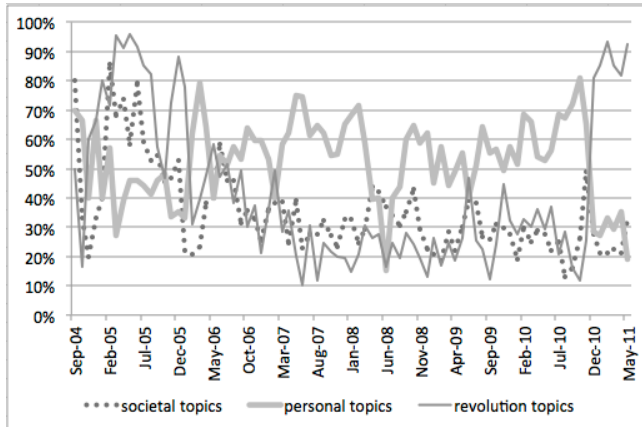


Figure 2: Percentage of English posts containing topics by month

In examining the English blogs, we found that, as with the Arabic blogs, an inverse relationship between the occurrence of personal and political topics existed. We also call attention to the dramatic reversal in quantity of revolution and personal topics in the months preceding and during the revolution.

A number of obvious patterns emerged. First, topics concerning ‘revolution’ have been discussed in the blogosphere as early as 2004. Though the discussion began to decline in 2006, it still was a constant presence in the

blogosphere, constituting at least 20% of the discussion over the last eight years. The percentage of blog posts that concerned revolution experienced a significant upsurge in late 2010, increasing from just 11.9 percent in October of that year and 22.5 percent in November to 81.2 percent in December 2010. This increase bears a striking correspondence to the increasing amounts of protest activity in that month. However, while the Arabic blogs also saw an increase in occurrence of the revolution topic, the change was relatively minor—32.5% to 46.3%. While the surge in revolution-related posts seen in the English posts between October and December seems intuitive given the magnitude of the events occurring in the country, the lack of a corresponding surge in the Arabic blogs raises questions about what fundamental differences in purpose and audience might exist between the English and Arabic blogs, in addition to the possibility that posts written in English may predominately be authored by the Egyptian diaspora.

Though there was a great deal of variance in the number of posts that contained personal topics, it is notable that the number of blogs that used personal language dropped dramatically, from 81.0 percent in October 2010 to 21.3% in December of that year. This corresponds to our Arabic results.

In our analysis of the data, we discovered a number of interesting trends that merit further investigation: First, we found that the appearance of self-oriented language seemed to show a correlation with the appearance of topics about society. This suggests that, for Egyptian bloggers, issues like human rights could have been impacting their daily lives, and that these issues were important to a large proportion of bloggers from Egypt. This finding is consistent with the fact that bloggers often acted as citizen journalists, actively documenting their own experiences and observations of police torture, human rights abuses and the denial of civil liberties [1, 15].

Coders noted that increased posting about the regime was preceded by some months or days by topics concerning societal issues. If such a relationship exists, we might attribute a shift in attention to the regime to prior shifts in attention towards societal malaise—spikes in revolution topics in July 2008, July 2009, and December 2010 were all accompanied by significant spikes in societal topics in the preceding months. The most active time period for both revolutionary and societal topics occurred from April–September 2005, a period that marked an important presidential election in which substantive political reform was widely discussed both domestically and internationally. It also marks Kefaya at the height of its power. The results of the election were disappointing to many, and revolutionary topics dwindle and fall into a trough from 2007-09.

The differences between the results of our Arabic and English topic modeling were stronger than we had suspected they would be, and raise some interesting

questions. The topics that were found in the English blogs seemed qualitatively different—more topics were found on the revolution and on human rights—notably, the issues that have been the focal point for Western attention on Egypt. These observed differences could be interpreted as English blogs being outward-facing instruments of communication to a foreign audience.

The upsurge of posts concerning revolution in December 2010 was of particular interest to us. We hypothesized that the use of English in blog posts was done to cater to an outside, non-Egyptian audience by both Egyptian residents and expatriates. Prior to late 2010, a majority of blog posts tended to concern various apolitical topics. However, as civil unrest in the bloggers' home country increased along with the prospects of revolution, many of these bloggers chose to report on or comment on the events taking place in Egypt at a time when the regime-controlled state media was squelching all reports of civil unrest. Despite the threat of retribution to those residing in Egypt, many bloggers chose to promulgate narratives of events in Egypt subverting those officially approved by the Mubarak regime, effectively enacting counter-power in an online space over which the regime could not exercise sufficient control.

Egyptian blogging bracketing the uprising

The period spanning early December and late February was of particular interest in our examination of the relationship between blogs and the Egyptian uprising. The key historical events of this period, such as the Tunisian uprising and the beginning of protests, and the changes to the blogging landscape we observed from the topic modeling led us to investigate more closely the blogging during this time. We qualitatively analyzed and coded blog posts authored between December 1, 2010 and February 28, 2011. Posts were written in English, formal Arabic, and the Egyptian dialect. In some rare instances more than one language was used in a single post. Posts were analyzed by three researchers, one of whom is fluent in English, formal Arabic and the local Egyptian dialect. A total of 1,026 substantive blog posts (i.e. blank blogs and advertisements were removed) were collected by the aggregator during that period of time.

We found we were often unable to determine the demographics of the bloggers who were active during that period because some did not offer any profile information, or the information within the profiles was incomplete. Previous research suggests that such anonymity provides bloggers with a degree of security and consequent freedom to write about politics without fear of arrest [13].

Three researchers coded different parts of the data; one coder was fluent in Arabic and coded the Arabic blogs; two were fluent in English and coded the English blogs. A subset of the data was used to train the coders until all three agreed on the code meaning.

We found that posts fell into one of three types: *reporting* news, providing *commentary* and, *other*. Posts were coded

as *reporting* when the blogger focused on reporting events objectively, similar to an article in a mainstream newspaper. Posts were coded as *commentary* when bloggers included personal opinions, personal accounts, or general observations regarding events in their posts. All other posts were coded as *other*, which discussed, for example, art, photography, crocheting, or TV programs.

We looked for evidence of mobilization efforts (in the protests) by bloggers to determine purpose. Blogs were coded as *action* blogs if the purpose of the post was either to urge participation in the uprising or to mobilize others by providing information to help coordinate or organize the uprising. Blogs that did not urge or mobilize action were coded as *non-action*.

A single post could be coded as both *commentary* and *action*, for example:

“the light and at last the light and in the name of the martyrs call upon you to come to visit Tahrir square and home of the free but take with you an ID and let them search you at any entry way...” [Translated from local Egyptian dialect]

The blogger encourages participation in the protests by “the light” of the martyrs, thereby supplying a narrative that legitimizes action against the government, what we consider a *counter-narrative*.

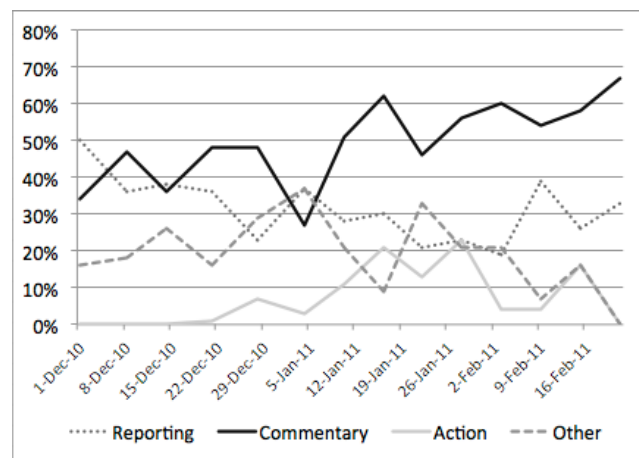


Figure 3: Percentage of blog types and purpose by month

Figure 3 illustrates the results of the manual coding for the December - February blog set. Contrary to our expectations, the number of action posts is surprisingly low, at most accounting for slightly more than 20% of all posts analyzed during that time period. Thus, roughly 80% of posts did *not* urge action or mobilization. We found that the majority of posts provided commentary, peaking at over 60% in January and close to 70% in February. Posts that reported news, however, maintained a relatively steady presence in the Egyptian blogosphere throughout this period.

In general, the blog posts reflected events occurring inside of Egypt. While action posts were non-existent prior to around mid-December, the frequency of their appearance

gradually increased in tandem with the momentum of the uprising. On the other hand, the prevalence of commentary and reporting posts remained steady with that level prior to the onset of the uprising. Although we observe that the number of reporting posts was relatively consistent, they too increased slightly at certain points. We note, for example, the increase in reporting posts around the time when a car bomb exploded near a church which led to many casualties and damage to the church itself. Commentary posts began to increase after the bombing and the Tunisian uprising and then continued to increase during January. Thus, during this critical period of time in the MENA, blogs converged on discussion about the revolutionary events taking place.

The fact that commentary was the most prevalent type of post prior to and even more so during the uprising is an interesting finding worth exploring in more detail. During the period of time analyzed, we noticed blogs frequently referenced news stories from outside media sources in order to provide context for subsequent commentary on the issue or event. In doing so, they did not simply report news, they actively engaged in its content, made sense of it, and articulated an opinion that reflected their personal point of view. Unlike more objective, outside perspectives common in mainstream news journalism, commentary posts expressed the attitudes and the convictions of their authors.

For example, a post dated January 17 reacted to Egyptian mainstream news coverage of the Tunisian uprising:

“...The official media is reminding us over and over by all possible and provoking ways that what happened in Tunisia can't and will not happen to Egypt, the official media is speaking about pseudo achievements of Mubarak's economic policies living in their dream world that the people will buy their lies anymore. All these statements and all these denials are actually strong indicator on how scared and fragile the Egyptian regime is currently...”

The blogger recounts the government-sponsored narrative about the Tunisian uprising as being an isolated event that could not occur in Egypt referencing Mubarak's economic achievements. This post is an example of what we refer to as a counter-narrative, framing the official media coverage as an act of denial that proves the fragility of the regime.

THE SHAPE OF THE EGYPTIAN BLOGOSPHERE

Triangulating the results of both the topic modeling and the qualitative coding suggests that the blogs provided a narrative thread about the political uprising. While the qualitative coding revealed that most Egyptian posts consisted of commentary, the topic modeling further clarifies that the blogging of revolutionary topics increased and diminished in accord with the increasing and diminishing momentum of the uprising in Tahrir square.

Coders also noted the primary topic of each blog noting multiple topics when they were covered. We find several

indications that the blog content is consistent with the notion of conveying counter-power.

Here we provide a general overview of the content. First, prior to the uprising, blog posts primarily consisted of reports and discussions about the November 29 - December five parliamentary elections and subsequent allegations of fraud and intimidation. This event, along with the car bomb attack near a church on January 1 dominated the Egyptian blogosphere during December and early January. The church bombing continued to emerge in posts the following month and led many bloggers in the Egyptian blogosphere to speculate about those responsible for the attack and the motives behind it. One such post is presented below (translated from Egyptian dialect):

“'religion is for God and the homeland is for everyone', they want a civil war they want sectarian conflict they want to distract people from their crimes they want to be outside the conflict zone and watch from afar...”

The blogger attributes the terrorist act to some unnamed third party that is taking advantage of a weak and corrupt government. The topic of the church bombing is discussed again in the weeks prior to and during January 25. One post written in Arabic reported that the Ministry of the Interior would announce the name of the perpetrator, and another blogger reported that a terrorist group was responsible. Both bloggers went on to discuss the implications of such news. Such posts provided updates to past news stories that motivate reexamination of the event and further interpretation of the underlying social and political forces perceived to contribute to the attack. They illustrate the impact of the event felt by many bloggers as well as their dissatisfaction with the government's response.

Second, blogging about the Tunisian uprising was prominent. The outward dissatisfaction of bloggers to the government's reaction to the church attack was amplified and propagated during the Tunisian uprising. We found reporting and commentary concerned with the topic of 'revolution' emerged shortly after the Tunisian uprising on January 14 2011, with several bloggers referring to it in their posts. Early posts provided emotional support to the Tunisian people, reported on their progress and commented on their courage. We found there was a gradual transition in this dialogue to include discussion of a revolution in Egypt. For example, one blogger questioned why the revolution had occurred in Tunisia rather than Egypt. An overt example of counter-power communication came when some began to refer to the demonstrations scheduled on January 25 as the beginning of the Egyptian revolution, e.g.:

“Will 25th of January 2011 be a remarkable Day in our history ??.. there is a big event organized by “We are all Khaled Said” group and supported by other opposition political parties and groups on that day and there are huge hopes that this event will change Egypt forever especially after what happened in Tunisia...”

Many blog posts provided constant updates on events occurring in Egypt from Jan. 25 onward. They reported diverse aspects of the uprising, e.g. police presence and government reaction. One Arabic post reports the arrest of journalists working for mainstream Egyptian media as they protested outside a media building. Others reported the increasing popularity of the movement and the difficulties that protestors encountered, for example:

“There is a protest reportedly taking place in Ismailia Al Masry Al Youm is broadcasting a live stream from down town. Live Broadcasting by Ustream. The police has failed in attacking the protesters at Tahrir and the protest there is getting larger and larger. The protesters have managed to cross the security cordons and seemed to be heading to Kasr Al Nil bridge. The entrance and exists of Cairo are being locked.”

Another post authored on the 25th, refers to pictures taken of the square, countering the videos shown on national TV:

“... Protests began today for National Police Day (a national holiday that became effective only a year ago), but the voices were all the same: “Gamal, go back to your father (Hosni) and leave Egypt.” ... I wanted to witness it, thus I set off on my journey to Tahrir Square around 1:15 pm. Roads were blocked off and I walked for about 25 minutes before reaching Tahrir.”

The blogger provided a first-hand account through pictures and textual description of both the people who were participating in addition to the altercations between the police and the demonstrators. At times, an initial post was updated or followed up by later posts, connecting and creating a context for fragments of information. Thus, we find that bloggers countered the government-controlled narrative by posting and continually updating personal testimonies of the events taking place in the streets. By collectively contributing to an alternate narrative, Egyptian blogs became online communication mechanisms to counter and resist the power of the government.

The Egyptian government sought to repress communication through the Internet by ordering a “virtual curfew” (which lasted January 28–February 2) mandating that Internet service providers block all internet connections. Here we find a case of what Castells describes as blocking the mechanisms of control over the networks by the institutional power. Some bloggers were able to work around the curfew by corresponding through friends and family abroad and through other undetected means (e.g. phone, proxy-websites). One blogger continuously updated his post throughout the day on Jan 29 despite the curfew:

“I woke up on my iPhone , the mobile phones are working while the internet is still not working. 10:25 AM Al Jazeera reporter in Alex : More than 20 bodies alone. 10:25 AM Arkadia mall was stolen yesterday. Some shops are stolen in Gamaat Al Dou. 11:15 AM Some mobile lines are

working , some are not according to the the mobile phone operator and geography as far as I see.”

The blogger provides a steady, almost hourly stream of information until midnight, with an intimate chronology of the blogger’s experience during the revolution. Others provided links to blogs reporting the curfew, e.g.:

“While the Egyptian government is now attempting desperately to crack down on all non-state-controlled media outlets, these activists have been using different forms of communications tools to build upon a message of nonviolent change they have been promoting...”

These posts demonstrate how blogs were used to communicate the experiences of Egyptians during the revolution despite restrictive policies imposed by the Mubarak regime. Such posts illustrate how blogs were utilized to counter and (through the use of other media) circumvent the government’s authoritative grip of power.

The utilization of blogs to counter institutionalized power continued even after Mubarak’s resignation on February 11. We found many posts discussing the corruption of the Mubarak family and the newly empowered transitional government. Many doubted the transitional government’s ability, competence and willingness to meet demonstrators’ demands as this post authored on February 21 shows (translated from the Egyptian dialect):

“We will remain standing to complete the revolution...we will go on strike again until our demands are met...”

Here we see that even after the success of the revolution there is a precarious balance between institutionalized power and networked counter-power.

DISCUSSION AND CONCLUSIONS

Our investigation illustrates that the blog posts provided a consistent *narrative* often used to counter that provided by the authoritative power, the Egyptian government. Based on our results, we feel it is more accurate to interpret the Egyptian blogosphere during this period as providing counter-power through enabling the collective production of a *counter-narrative*.

First, in analyzing blogs, we noticed that the posts, through their commentary, together crafted a fluid, expressive narrative. Interestingly, while we initially anticipated finding more instances of organization and mobilization of protest movement (action posts), our findings detect subtler forces at play found in these commentaries.

Castells' argues that power is "the structural capacity of a social actor to impose its will over other social actor(s)" and that counter-power is "the capacity of a social actor to resist and challenge power relations that are institutionalized." Power, he argues, is based on the capacity to influence people's minds and as such, communication and communication infrastructures have always been important to issues of power. Prior to networked communication, this infrastructure was wholly under the control of the Egyptian

government. As a result, information and communication control disseminated through the vertical, 'top-down' structure of broadcast-based media—television, newspaper, and radio—institutions of state power. On the other hand, networked communication defies such centralized control. The presence (and, according to the topic modeling, the increasing presence) of counter-narratives suggests that blogs served as an *alternative public space* in which sociopolitical issues and policies could be discussed, debated and disseminated. Social media can facilitate horizontal, many-to-many person communication, and, as our data demonstrate, allow the dissemination of these counter-narratives against power and domination.

As state media tried to downplay the size and strength of the uprising, first in Tunisia and then in Egypt, bloggers posted videos and first-hand accounts of what was actually happening in the streets. Counter-narratives broadcast on blogs were consumed and circulated by both domestic and international audiences. Egyptians blogging in English translated events and supplied counter-narratives for global audiences, contributing to the shape of debates that took place in the international public sphere. In this way, counter-narratives aimed to delegitimize the Mubarak regime's authority. By virtue of being social media, counter-narratives are broadcast into an online public sphere where discussion and linking are encouraged. This increases the chance that it will be shared by others. As the numbers grow, chances decrease that government authorities can contain it.

The results from topic modeling and qualitative coding together show that blogs converged on topics concerning the revolution during the December 1-February 28 time period. Reporting and commentary blog posts increased with the growing momentum of the Egyptian uprising, and the posts provided a narrative of the Egyptian uprising. The results illustrate the coalescence of blog post topics during critical periods of the uprising. The posts during that period transformed the shape of the Egyptian blogosphere from one that reflects the diverse interests of bloggers discussing personal and other topics into a cohesive thread, a counter-narrative to the government-controlled Egyptian media.

The communication we observed took place within a virtual public space where social actors can exercise autonomy and promote change in ways that were previously impossible. Such autonomy is typically attributed to western culture, as is the use of social media for mass-self communication [7]. Our results illustrate that such autonomy is not limited to a particular culture but can be enabled by access to these technologies.

The Egyptian government attempted to control the blog space by arresting several prominent bloggers. However as we found, they were unsuccessful, as the amount of blog posts about revolution and dissent against the government only increased with time. The Egyptian government also tried to control the public space by shutting down the

Internet, imposing a "virtual curfew". However, Egyptians adapted to these restrictions and gained access to the Internet through other means -- an example of *counter-power* using social media.

Additionally, we argue that the malleability of the blog media enabled authors to adapt the tool to meet their needs. We found instances during the height of the protest activity where blog posts consisted of a series of updates as events unfolded, similar to the use of micro-blogs. We also found instances where media such as YouTube videos and photos were embedded into a blog, transforming the presentation of content from a single-media tool into multi-media. This hybrid presentation did not detract from the textual narrative but rather added to its complexity and enhanced its credibility. Also, bloggers linked their posts to other ICTs like the "We are all Khaled Said" and the "April 6th Youth" political groups referring to their websites and Facebook accounts. This suggests that users adapted tools to suit their emerging needs and in doing so showed their "adaptation adopting, aggregating and developing new forms of social media" [7]. Furthermore, such uses are an indication that these bloggers have greater ability to exert counter-power, as they confronted institutionalized power through their blog posts.

Castells describes one mechanism of counter-power as changing the codes of networks. The reports, commentary, pictures and videos posted by bloggers created a new norm of challenging official reporting of the events by mainstream Egyptian media (controlled by the government). The state-run media initially denied the spread of the movement (e.g. by showing video clips of empty streets) and later attributed the movement to some foreign power (e.g. Iran) [22].

In sum, we found that blogging gave Egyptians an opportunity to report and comment on the uprising by communicating information and opinions that were not generally available through state-run media. Both the topic modeling and our qualitative analysis showed a marked increase in blogs that focused on the revolution as it progressed. The communication reflected in blogs provided a narrative that countered the narrative controlled by the government. By contesting the dominant frame given by state-owned and controlled media, blogs provided a platform for what we characterize as a *counter-narrative*. We argue that the enablement of counter-narratives in a country where political speech in traditional venues was tightly controlled by the government is a convincing example of the enactment of counter-power through the use of contemporary social media. As more real-world examples of counter-power through social media appear in the coming years, we posit that the ability or inability of governments and other power-holding institutions to exercise control over the numerous forms of expression enabled by these technologies will become an issue of greater contention.

LIMITATIONS AND FUTURE WORK

We recognize that our study is limited to a particular population of literate individuals who have access to ICT. Our analysis of posts written using the English, Arabic, and Egyptian Arabic language provides some degree of representativeness to Egyptian society, English is typically considered to be preferred by the financially elite Egyptians, and Arabic is typically preferred by the educated, whereas the Egyptian dialect typically preferred by all other Egyptians [23]. Our analysis consisted of blogs using the popular Blogspot platform, which is not a fully comprehensive subset of the Egyptian blogosphere. However, given the size of the blogosphere we feel that we did generate a large enough sample that we could make inferences to some degree. Most research can only claim to analyze a cluster of posts within the blogosphere; we chose to focus on the Blogspot cluster.

Future work will involve further research into the Egyptian blogosphere to investigate differences between blogs written in English and non-English, government blogs and other power frameworks (e.g. [16]). We also aim to study other areas of unrest within the region (e.g. Libya) to examine the shape of the blogosphere in different MENA countries and use those results for investigative comparison.

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