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2. A Comparative Analysis of Social Media Platforms and the Effects of the Internet Cut-Off for Egypt's Social Transformation Movements

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Abstract

Social media have been implicated in the recent social movements in much of the Arab world. This study examines the use of social media (SM) platforms, namely Facebook, YouTube and Twitter, in the movements that took place in Egypt during 2011-2013. In particular, we explore the relative usefulness of SM affordances for each platform and relate to affordances that were reported to be significant during Egypt's social transformation movement in a previous study. We also investigate usage levels for each platform over the period of our study and examine how SM users perceived the effects of the Internet cut-off, which blocked access to these platforms for several days at a critical point in the movement. We do so using a survey of university students, who formed a significant group in Egypt's social movements.

Keywords

Social media platforms, social movement, Egypt, Internet cut-off

1. Introduction

“If you want to liberate a country, give them the Internet.” (Ghonim, 2012). This saying from Wael Ghonim, a young Google executive, who was an integral part of Egypt's recent social movements that led to the collapse in early 2011 of the Egyptian regime that had been in power for 30 years, highlights the importance of Internet or, more precisely, of the functionalities offered by social media (SM) platforms and networks for supporting social movements. While many previous successful social movements started in the streets, Egypt's 2011 political uprising grew exponentially in the cyber world. Driven by economic decline, unemployment and general dissatisfaction with the regime, and fuelled by the Internet with its supporting information and communication technologies (ICT) as the communication backbone, Egypt's recent social transformation movements have been seen as exemplifying the power of SM platforms. According

to Gustin (2011), “this is where modern communication technology proved to have the most potent impact.”

Egypt experienced a huge growth in ICT development over the years leading up to the movements (Bhuiyan, 2011) and SM became the main platform and channel for a growing young and educated Egyptian population frustrated from the dire socioeconomic and political conditions (Kamel, 2014). Moreover, as a reaction to the early 2011 uprising, the number of Facebook users in Egypt increased by around one million between 28 December 2010 and 8 March 2011 (Socialbakers, 2013). The increased Internet penetration was at least in part the result of government policy promoting the diffusion of ICT in the country (Saleh, 2012). Although SM including Facebook, Twitter and YouTube have been used in various Egyptian movements since 2008, their use grew exponentially just before, during and after the January 2011 movements (Kamel, 2014). While SM was not the cause of the uprising, it undoubtedly accelerated the process by helping to organize, discuss and disseminate views, and gather international support (El Tantawy & Wiest, 2011).

It seems that SM was essential to spread the word, in particular on Twitter and Facebook, encouraging followers and friends to go down to the streets at specific times and locations. In the early phases, however, the short messaging system (SMS) was also used to distribute information among protesters. Eventually, the government decided to block the Internet and mobile phone communication starting with Twitter on 25 January 2011 followed by Facebook. Gradually over a few days, the country was effectively disconnected from the Internet. The blocking lasted until 2 February 2011. However, despite the Internet cut-off, some activists managed to get their message out, again with the aid of SM (El Tantawy & Wiest, 2011) and friends living abroad who were asked to post content, e.g., tweet messages (Zirulnick, 2011). Essentially, the decision to block the Internet did not have the intended effects sought by the Egyptian government.

In this paper we seek to explore the usefulness of SM affordances in relation to Facebook, Twitter and YouTube during the Egyptian social movements that occurred from 2011 to 2013. For this purpose we draw on four general groups of nine underlying perceived affordances of SM that were reported to be significant during Egypt’s social transformation movements (Harindranath, Bernroider & Kamel, 2015). When these affordances are appropriated by movement participants, they interact with each other, co-organize and observe events, and share and post content related to the movement. Besides considering these activities, we also seek to consider how usage levels per platform developed over time. Our analysis will be concluded by exploring how users perceived the effects of the Internet cut-off, which blocked these platforms for the duration of a few days thus taking away their freedom to connect and communicate. We expected to see a catalysing effect pushing people to the streets as an unintended consequence of this cut-off. Hence, this study asks the following research questions: (i) How are affordances for social transformation purposes perceived when linked with SM platforms? (ii) How regularly were SM platforms used and did usage levels change over the course of the main movement events? (iii) How were the effects of the Internet cut-off perceived? To investigate these questions in the context of the recent social transformation of Egypt, we gathered survey data targeting university students. This demographical group consisting of the young and educated can be considered as one of the most active and technology savvy groups taking part in the movement. It is important to note that the overwhelming majority of the Egyptian population (58%) are under the age of 25. The embedded

passion of such a massive youth contingent coupled with a strong desire for a better future played an important role in Egypt's uprising of January 2011 (Kamel, 2014).

2. Background

2.1 Egypt's Transformation

Egypt possesses a long and rich history, a remarkable civilization and a cohesive kingdom from around 3200 BC. The country has a strategic geopolitical location and stature and represents a significant economic power in the Middle East and Africa (Attia et al., 2011). Egypt is the most populous country in the Middle East and the 16th in the world with over 85 million inhabitants. Since 1952, Egypt has been a republic under an authoritarian rule. During the tenure of former president Hosni Mubarak (1981-2011) several efforts attempted to reform Egypt's slow economy. However these efforts did not go to plan and by 2008 the United Nations Development Programme's annual report was reporting that 20% of Egyptians were living below the poverty line (UNDP, 2008). The growing gap between different social and economic classes in the community, the socioeconomic pressures manifested through increasing levels of corruption, lawlessness, unemployment and violations of human rights all helped create an unstable political climate leading to mass protests that accelerated in early 2011 eventually leading to the collapse of the Mubarak regime in February 2011 (Attia et al., 2011). Late 2011 saw democratic elections leading to a new government in 2012. However mass protests erupted once again in response to new laws and proposed constitutional changes leading to the dissolution of the government by the Egyptian military in 2013.

2.2 The Role of SM Platforms

The use of the Internet for social and political activism in Egypt started well before 2011. In the early 2000s, many Egyptian bloggers and activists became prominent at using blogs to address key socioeconomic and political issues (El Tantawy & Wiest, 2011). Although the early blogs were mostly in English, the rapid development of multiple software applications in Arabic led to the increasing popularity of bilingual blogs among those interested in socio-political and economic issues. In recent years, exchanging information through mobile phones and Internet-based SM platforms such as Facebook, Twitter, and YouTube has become widely established at least among the urban population (Kamel, 2014).

The relatively young population, access to the latest SM platforms and rising political and social unrest all contributed to the mass uprisings that erupted across Egypt in 2011. It has been argued that the information disseminated via SM encouraged nearly 5 million Egyptian Facebook users to attend the 2011 protests (Fowler, 2011) and that SM introduced speed and interactivity to the movements (El Tantawy & Wiest, 2011). Prior to the January 2011 protests, over 32,000 Facebook groups had been set up and over 170,000 protesters had pledged via Facebook to attend planned marches (Fowler, 2011).

Different SM platforms were used for various activities. While Facebook was used mainly to exchange audio-visual content, write-ups, and in the formulation of discussion groups, Twitter was used for logistical purposes such as where to meet, what to avoid and how to deal with tear gas.

Flicker was used to post photos of different incidents and locations and YouTube was instrumental in documenting events taking place across Egypt (Shapiro, 2009). All this highlights the potential of SM platforms and the Internet to rapidly create a shared awareness of events among citizens by enabling the swift exchange and dissemination of information to millions of people both inside and outside of Egypt (Shirky, 2011).

Conceptualizing the use of information systems through the lens of technology affordances has become prominent in contemporary IS literature in particular when considering SM (e.g. Limaj & Bernroider, 2016; Mesgari & Faraj, 2012). Technology affordances are seen as action potentials, and reflect what an individual with a particular purpose can do with the technology or information system (Majchrzak & Markus, 2012). The affordance lens is also becoming increasingly popular in studying the role of information technologies in social movements (Earl & Kimport, 2011) and political campaigning (Jensen & Dyrby, 2013). In a previous study, we identified a number of perceived affordances of SM that were appropriated by Egyptian activists during these movements (Harindranath, Bernroider & Kamel, 2015); these can be grouped into four general categories of perceived affordances: Content Consumption (made up of information validation, information supplementation, and perpetual self-updating affordances); Content Contribution (made up of perpetual mass-updating, and self-reportage affordances); Movement Control (made up of monitoring and influencing, and self-organisation affordances); and Social Interaction (made up of interactive communication, and self-presentation affordances).

2.3 The Blocking of the Internet

It has been estimated that the Egyptian government's blocking of the Internet during 25th January to 2nd February 2011 cost Egypt US\$90 million and enraged both Egyptians and the international community (Noble, 2011). The Internet blackout led even more people out on to the streets with some estimating that over a million people were out protesting, nearly ten times the number during previous days (Kamel, 2014). The drastic move by the government to block the entire Internet may have led people to sense that their movement was gaining ground and this in turn may have accelerated the movement. This phenomenon can be seen as an example of what is referred to as the 'dictator's dilemma' whereby shared awareness created by new media such as SM increasingly led to a disconnect between the regime's view and that of the citizens; cutting off access to such media exacerbated public dissent further and risked politicizing even those citizens that were pro-regime in addition to significantly harming the economy (Shirky, 2011).

3. Research Methodology

3.1 Data Collection and Sample

To answer our exploratory research questions, we drew on data collected in early 2014 through a mixed-mode survey using a Web-based online instrument and hardcopy questionnaires to improve survey response (Dillman et al., 2009). We did not offer any incentives apart from the results upon a separate email request. Since the social transformation movement in Egypt was strongly influenced by a growing young and educated Egyptian population that was frustrated by the dire socioeconomic and political conditions, we decided to target the young and educated. We therefore decided to implement the survey at the American University in Cairo (AUC), Ain Shams

University (ASU), and German University in Egypt (GUE) in Cairo. This sample should also allow for some comparisons with other social transformation movements as students are seen globally as a potent force of politically and technically engaged activists (Altbach & Klemencic, 2014; Calenda & Mosca, 2007) and they have also been particularly active in all recent social movements across Arab states (Shafiq et al., 2014).

We contacted 1,710 students studying at our three target universities and received 364 data sets including 201 full and 163 partial survey responses, which amounts to an overall response rate of 21.3%. We identified 8 invalid full and partial responses, which we excluded from data analysis. The resulting sample (N=356) includes 63.9% female and 36.1% male students with the large majority studying full-time (91%). The mean age of a respondent is 20.73 years. All three participating universities contributed similar proportions of the sample (between 27% and 41% of students).

For developing the questionnaire, we drew on our previous research investigating the Egyptian social transformation movements from a qualitative perspective (Harindranath, Bernroider & Kamel, 2015). This study identified shared technology affordances in relation to three main SM platforms including Facebook, Twitter and YouTube. We included these platforms in the survey and also generalized from the more specific affordances given in this previous study to reflect content contribution, content sharing, movement control and social interaction. The measurement items were assessed by local experts, one local co-author and the research assistant in Egypt for content validity. In particular, statements sensitive to the on-going dynamics in Egypt were rephrased, and the structure and flow of questions improved. This was implemented by multiple rounds of pre-testing resulting in revisions.

3.2 Bias Analysis

To examine the possibility of bias, we investigated survey nonresponse bias via the commonly applied wave analysis (Van der Stede, Young & Chen, 2006), where early versus late respondents are compared on the assumption that late respondents more likely resemble non-respondents (Moore & Tarnai, 2002). We therefore divided the sample into two half-sized groups based on the time the response was registered with regard to the online survey implementation. To integrate response across universities, which were not invited concurrently, we calculated response times relative to the fastest respondent of each sub-sample. As the comparison between those two groups revealed no significantly different characteristics in terms of gender (χ^2 test, $p=0.221$), occupation (χ^2 test, $p=0.292$) and age (two-sample unpaired t tests, $p=0.224$), we see no evidence for survey nonresponse bias. We also tested for common method bias or common method variance (CMV) (Malhotra, Kim & Patil, 2006 ; Podsakoff & Organ, 1986). CMV may cause a certain amount of covariance shared among all indicators. We applied the Harman's single-factor test as a diagnostic technique to test for CMV (Podsakoff et al., 2003) and did not detect any single factor or a general factor that may account for the majority of covariance among measures.

4. Results

4.1 Contribution of SM Platforms

We examined the individual preferences in terms of how useful Facebook, Twitter and YouTube were in relation to the four general affordances. Each respondent was asked to rank the usefulness of the respective platform's functionalities to afford the user to gain information (content consumption), to share information and report (content contribution), to express oneself and interact socially (social interaction) and to organize and mobilize (movement control). Only the respondents who reported to have perceived these affordances were allowed to fully or partially rank their value in terms of appropriating them between 1 (best) and 4 (worst) for each platform used.

Figure 1 shows that each of the four platforms show slightly different priority structures in relation to the four affordances. Consuming content is a general priority with contributing content always lagging slightly behind for all three platforms. Social interaction also ranks well, which was placed first for Facebook. However, for Facebook, these three affordances effectively form a tie as the users could not clearly distinguish between its usefulness for social interaction, and consuming and contributing content. Moreover, movement control is not far behind showing that Facebook can be seen as the most versatile SM platform. While movement control is best supported by Facebook, it is in general the least useful affordance, which can be explained by the target population representing general users and not activists in a more narrow sense. Twitter offers most in terms of consuming content together with interacting socially. It is the platform with the least usefulness in terms of organizing and mobilizing. YouTube's main affordances centre on consuming and contributing content, and less on interaction and controlling the movement.

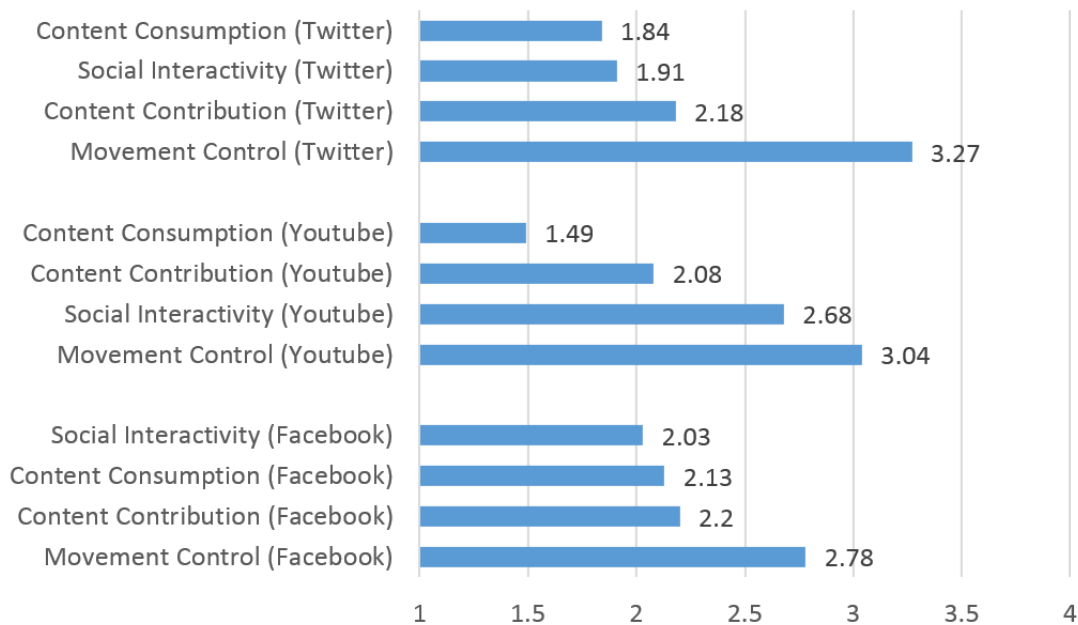


Figure 1: Mean ranks of affordances in a relative assessment of SM platforms (lower numbers mean better support)

4.2 Use of SM Platforms over Time

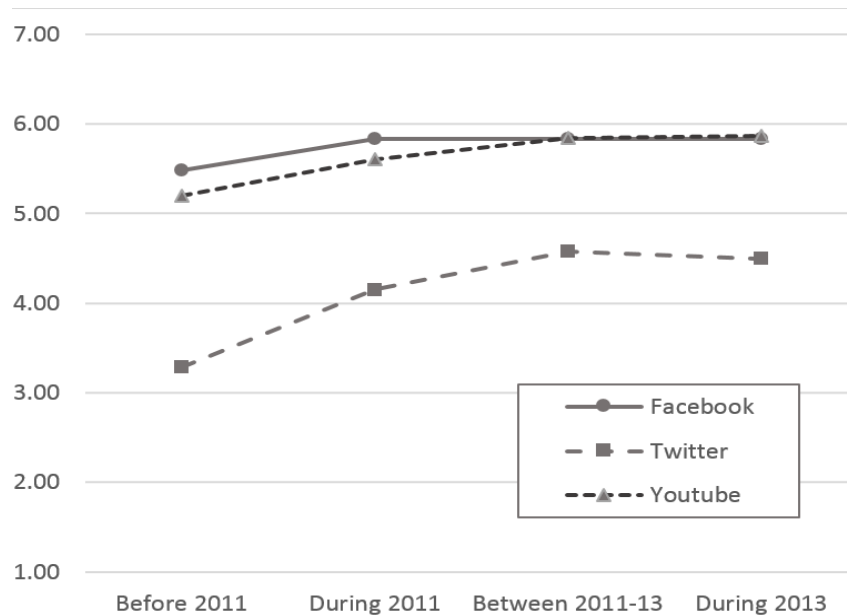


Figure 2: Mean use of SM platforms over the course of the movements
Scale: “never” (1) to “many times per day” (7)

Figure 2 presents the reported average daily use of SM platforms over the four movement periods considered in this study. It shows that all three platforms have been used regularly, Facebook and YouTube more extensively than Twitter. The daily use of Twitter, however, has increased mostly over the four time periods.

All platforms taken together, there are hardly any users in our sample that have not used SM (any of the three platforms) over the time periods covered in this study. The histograms in Figure 3 show highly skewed left distributions of the maximum use over any of the three platforms. Again, the charts demonstrate very active SM users with the majority using SM many times per day in any of the time periods. The tails on the left become thinner, showing that even more respondents used SM from one to the next time period. In particular, additional data analysis revealed that during the event of 2013 only 3.4% of users reported no SM usage at all and 91.2% of users reported daily use equal or above the value of 4, which is the middle point of the scale used.

While the above analysis shows that SM usage rates are almost exhaustive, the results regarding their perceived usefulness provides a more distinguished picture. Only Facebook clearly established itself as being useful to support their needs in the social movement for a large majority (87%) of users. This majority is much less pronounced when related to YouTube (66.4%) or Twitter (55%). However, only 6.1% reported that SM in general was not useful at all. This finding indicates that while users do not find all SM platforms equally useful, they generally rely on SM and have preferred platforms (in many cases, the preferred platform is Facebook).

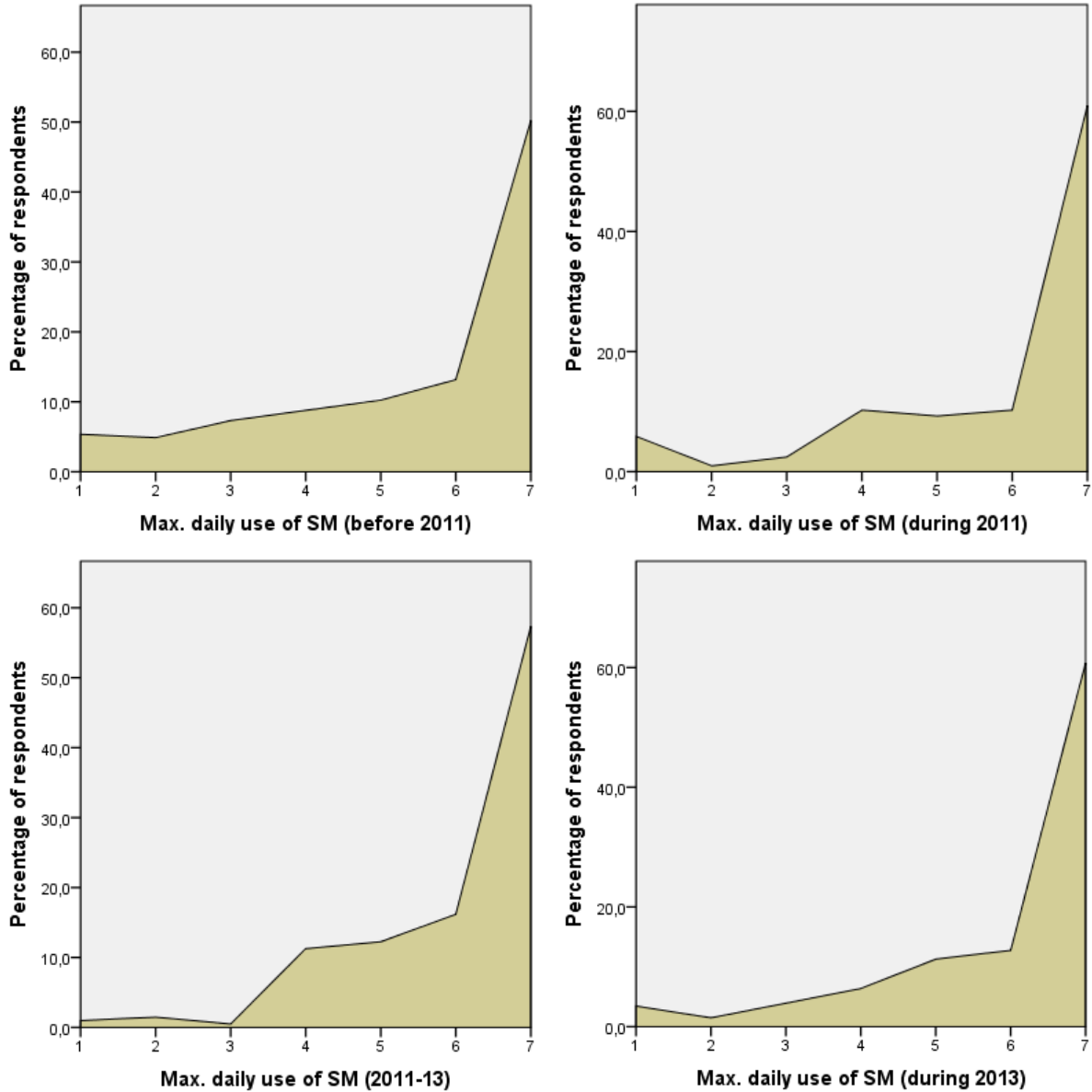


Figure 3: Histograms showing the distribution of daily SM use for the four time periods (Maximum daily usage over all four platforms considered)

4.3 Internet Cut-off

The effects of the Internet-Cutoff as perceived by the respondents were substantial (see Table 1). Most respondents agreed that the Internet cut-off not only affected the availability of current information (CU1), but also directly contributed to the mobilization of participants (CU2), and actually accelerated the social movement, an effect that has been referred to as the 'dictator's dilemma' (Shirky, 2011). This is reflected by the high means and the large majorities agreeing with the statements given in Table 1.

ID	Perceived effect	Mean	Std. Deviation	Prop. > 4
CU1	Lacking current information	5.65	1.78	78.7 %
CU2	More people went to the streets	5.54	1.69	75.0 %
CU3	Movement accelerated	5.56	1.61	76.7 %

Table 1: Effects of the Internet-Cutoff
Scale: “Strongly agree” (7) to “strongly disagree” (1)

Next, we tested to see whether these effects were independent in terms of platform considerations (see Table 2). Regarding perceived usefulness of platforms, there is a significant difference between the mean scores of users perceiving Twitter as useful (5.95) and those that do not (5.26) at the 5% significance level. Since the p-value of Levene's test is less than 0.05, we assume that the variances between the two groups are not the same. No other significant dependencies were detected with regard to the other SM platforms or Internet cut-off effects. Hence, users that rely on Twitter were more effected in terms of lacking current information than others. Twitter was also the platform blocked first on 25 January 2011. Facebook was blocked the following day and the Internet was cut-off effectively the following night.

		Levene's Test		t-test for Equality of Means			
Effect		F	Sig.	t	Sig.	Mean Diff.	Std. Error Diff.
Lacking current information	Equal variances assumed	11.15	.001	-2.65	.009	-.69	.26
	Equal variances not assumed			-2.58	.011	-.69	.27

Table 2: Results of the independent t-test to compare mean scores

5. Conclusions

The role of SM in Egypt’s social movements before, during and after the events of 2011 and 2013 continues to be debated. If SM were not a significant enabler of these movements, then there would have been no reason for the government of Egypt to cut off access to the Internet in early 2011 (Kamel, 2014). Our study shows that SM platforms, Facebook, YouTube and Twitter, were seen as playing an important role in rapidly increasing shared awareness of events and facilitating the social movements. We specifically show which SM platforms are perceived to be useful in relation to specific affordances; Facebook emerged as the most versatile and useful platform with users unable to clearly differentiate between the usefulness of all considered affordances in relation to it. Twitter on the other hand was more important for consuming content and social interaction while YouTube was more useful for content consumption and contribution.

Our study also shows that SM platforms were extensively used by almost everyone during the period 2011-2013, and that the use increased slightly over the four periods covered in this study. We also show that people perceived the Internet cut-off as severely affecting their ability to access current information leading them to believe that there was a definite acceleration in the movement as a result of the cut-off. Thus in the context of Egypt's social movements, SM platforms were perceived by its users as affording distinct possibilities for content consumption, contribution, social interaction and movement control. Users perceived the sudden disruption of these affordances through the blocking of the Internet as a deprivation that in turn seemed to accelerate the movement.

While this study highlighted the most used affordances in relation to specific SM platforms, examining the conditions under which users appropriate these affordances and consequently make the transition from online to offline activism is the subject of ongoing research. Future research could also explore the inter-relationships between different categories of affordances and how they come together to enable digital activism. Finally, we acknowledge a limitation of the current study: the absence of any central student databases meant that we could not use random sampling procedures. We therefore contacted all under-graduate students through the undergraduate offices of the three chosen universities in Egypt in order to ensure a good representation of all targets. Future studies could include a broader coverage of citizen activists.

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