Reinventing Revolutions: The Moral Politics of Cyberactivism in the Case of the Egyptian Secularist Movement¹

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> All political revolutions, not affected by foreign conquest, originate in moral revolutions. The subversion of established institutions is merely one consequence of the previous subversion of established opinions.

~ John Stuart Mill

Introduction:

The pivotal and unprecedented role that digital technology has played in instigating as well as documenting the Arab Spring has without a doubt renewed the interest in social movements beyond the traditional realm of the "physical". As the revolution in digital technology is slowly transforming the way in which people communicate, debate existing norms and are exposed to other social and cultural practices and forms of governance worldwide, it also provides new means for coordination and mobilization. In the advent of the Arab 'Spring' revolts throughout the region, it became clear that digital technology has successfully pushed its way into politics: allowing people across borders, class and formal venues of associations to debate, coordinate and transform the 'digital' into the 'physical'. Employing satirical language in the critical reproduction of news, as well as developing cartoons and videos, digital activism has taken on a new face that bridges cultures and allows a wider public to engage and relate to political, social, economic and cultural debates. Examples from around the world demonstrate how social media is becoming a venue for dissent, activism and campaigning for social, political and even economic causes and as a form to expose the violation of basic rights and freedoms. Activism in social media has furthermore reflected existing social and political debates in societies around the world. During the Arab Spring revolts, it reflected not only the ideological, but also the political divides between people across various spectra across the region. With the rise of political Islam, social media networks became flooded with debates on identity, religion and politics, and the rising polarities and peripheries of secularism and Islamism.

This paper focuses on the evolving role of social media networks in promoting social, cultural and political norms that defy the shared norms of the majority and the state by focusing on the case of 'secularists' in Egypt while shedding light on secularism in the Arab region in general. We study the socio-political norms shared by secular cyberactivists and their motivation to 'migrate' online, as well as in which way secular cyberactivists interact and coordinate. Through a wide-ranging survey of over 150 participants associated to secular movements on Facebook and YouTube, participant observation and network analyses of Facebook groups and pages advocating for secularism in the Arab world and Egypt, the paper

¹ The authors wish to thank Hassan Kamal for his advice and guidance in putting together the underlying survey of this paper and reaching out to the Egyptian secularist online community. The authors further thank Ismail Mohamed, founder and host of the online programme, The Black Ducks, and Sherif Azer for assisting in dissiminating the survey among the virtual secularist community.

examines the social and political dynamics defining state-society relations in the virtual world. In addition, we analyse the social networks in which secularists interact. Although the size of our study is limited, it combines the statistical information derived from questionnaire responses with the data generated from our network analysis, providing a broader understanding of the online secularist movements. It thereby focuses on and dive into the virtual world of a political/religious minority that defines itself as secular and advocates for upholding citizenship rights independent of one's inherited religion. Secularists are defined by their advocacy for the complete separation of state and religion, on the one hand, and the complete separation of social and societal norms, traditions and culture from religion, on the other. As such, secularists often find themselves in defiance with the state, the society and even the family, which unites them in the virtual world across borders, class, gender, and above all, their religious and political background. The evolving social dynamics between members of this virtual world of secularists makes them an interesting case-study for a better understanding of the dynamics of activism in the digital age in general and the post-'Spring' Arab region in particular.

From the 'Moral Economy' of the Crowd to the 'Moral Politics' of Cyberactivists:

a. Transcended Realities, Parallel 'Societies':

Literature on what came to be known as the 'Facebook Revolution' is slowly emerging and expanding with a focus on the power of social media in providing a venue for the coordination and mobilization of a large number of people as demonstrated in the 'Arab Spring' uprisings. Existing literature on the topic has been particularly focused on the case of Egypt and Tunisia in relation to the role of the youth in instigating the nationwide revolts.² Yet, no studies have evolved out of this expansive and growing literature in the post-Arab Spring that aimed at focusing on the dynamics governing the relationship between online communities, their political, ideological and social norms and the existential dilemma between the virtual and the physical in relation to their state-society relations and politics.

Since the Internet was made open to the public, it slowly evolved into a political tool that is pushing people away from the politics of the nation state (Negroponte 1995; Treré and Barassi 2015). Perhaps the first mention of an emerging new 'civilization', a third way, came with Toffler's *Third Wave* (1980) in which he examined how our consciousness is being altered in today's "super-industrial society" (Toffler 1980:10) – one that is based on intricate information highways that defy older norms of political engagement and in turn our understanding of and relationship with the nation state (Treré and Barassi 2015). At the same time, this was not the first examination of a newly emerging form of connectivity among individuals. In the "Network City" (1973), Craven and Wellman employed network theory to examine the interpersonal linkages that shaped the physical networks of the city, which he later developed into the "Community Question" (1979). Wellman argued that societies in general can be seen as 'networks of networks'. Hiltz and Turoff's the "Network Nation" (1978) built on Wellman's analysis of the potential of computer supported communication in transforming society. This was further expanded on by Castells (1996) in what he termed as the 'network society' in which he studied the structural changes to the global economy

² See generally Faris, David M. Dissent and Revolution in a Digital Age: Social Media, Blogging and Activism in Egypt. London: I.B. Tauris (2013); Lim, Merlyna. "Clicks, Cabs, and Coffee Houses: Social Media and Oppositional Movements in Egypt, 2004-2011." Journal of Communication (62.2:2012): 231-248; Tufekci, Zeynep, and Wilson, Christopher. "Social Media and the Decision to Participate in Political Protest: Observations from Tahrir Square." Journal of Communication. (62.2:2012): 363-379; Trottier, Daniel, and Fuchs, Christian. Social Media, Politics and the State: Protests, Revolutions, Riots, Crime and Policing in the Age of Facebook, Twitter and Youtube. New York: Routledge (2015); Sowers, Jeannie L, and Toensing, Christopher J. The Journey to Tahrir: Revolution, Protest, and Social Change in Egypt. London: Verso (2012), among others.

throughout the 1970s to the 1990s. According to Castells, the evolution of a 'new economy' produced new modes of development, information sharing and networks and hence new complex social structures that defy older forms of society. Rheingold (1994), also labelled as the First Citizen of the Internet, was among the first to discuss and examine the 'virtual community' in what he termed the 'electronic frontier'. Rheingold's work provided a thorough examination of the first virtual communities that emerged in the mid-1990s. In this regard, Rheingold noted "[t]he virtual village of a few hundred people I stumbled upon in 1985 grew to eight thousand by 1993. It became clear to me during the first months of that history that I was participating in the self-design of a new kind of culture."³ His work examined the social life, politics and dynamics of emerging parallel societies that developed in an ever-evolving "ecosystem of subcultures" - a universe, which he described as openended, horizontal and self-governing. At the same time, acknowledging a growing trend within the 'network society' or the 'virtual community' being built within this 'society', Hawthorne and Klein (1999) came to define cyberactivism as "the act of using the internet to advance a political cause that is difficult to advance offline... to create intellectually and emotionally compelling digital artifacts that tell stories of injustice, interpret history, and advocate for particular political outcomes."⁴ Ayers and McCaughery (2003) defined it as the use of electronic media of communication technologies, such as mass emailing, the World Wide Web (blogging, petitions, etc.), and podcasts as a form of activism able to reach a large audience in a short time. Recently, cyberactivists have successfully been using social media networks, such as Facebook, Twitter, YouTube and Instagram, to reinforce their online presence and mobilize a large number of people regardless of class, status, nationality, ethnicity or gender around shared norms and ideologies. Rheingold's work serves as the foundation of our examination of a 'virtual community' that pushed its way into cyberspace as a form of resistance to state authoritarianism and societal suppression.

b. The Moral Politics of Cyberactivism:

Building on E. P. Thompson's (1971) examination of the 'moral economy' of the English crowd, our work examines the intricate online 'networks' formed by activists which define and affect their relationship to society and to the state. Though Thompson's approach reflects only a fraction of this concept's history that goes back to the late eighteenth century, his contribution has renewed the interest in the concept for explaining the interplay between social norms and economic activity that govern state-society relations. James C. Scott's most notable work in 1976 critically examined the moral economy of peasant societies in Southeast Asia as semi-autonomous social structures following what economists and anthropologists tend to refer to as the 'subsistence ethic' or safety first economy. The politics of subsistence within a moral economy is one that is derived from the norm of reciprocity and the right to subsistence, which has been part of many traditional societies, particularly those pre-dating the modern formation of states. William A. Munro's (1998) work on Zimbabwe and the moral economy of the state builds on the focus of community norms as examined by Thompson and Scott, and applies it to the role of the state within the African context in relation to Foucault's interpretation of power and Gramsci's notion of hegemony. Recently, Norbert Götz (2015) challenged Thompson's definition of the moral economy and argued that the concept can be employed to understanding modern civil society. Posusney (1993) has further expanded on the concept beyond peasant economics to labour workers and movements in the case of Egypt. The concept was even examined in relation to the Muslim Brotherhood movement by

³ Rheingold, Howard. *The Virtual Community: Homesteading on the Electronic Frontier*. Reading, Mass: Addison-Wesley Pub. Co, 1993, p. xvi.

⁴ See Stephan, Rita. 'Cyberfeminism and its Political Implications for Women in the Arab World.' *E-International Relations*, 2013, available at: <u>http://www.e-ir.info/2013/08/28/cyberfeminism-and-its-political-implications-for-women-in-the-arab-world/</u>.

Joel Beinin and Zachary Lockman (1987). From crowd politics and food riots in eighteenth century England to peasant politics in Asia and labour and religious movements in the Middle East, the concept of the moral economy has been mainly linked to the politics of subsistence ethics and resisting authority.

Our work aims to extend on the conceptual underpinnings of the 'moral economy' by relating it to another concept of a conceptually different nature in the literature, which we find more suited to describe the behaviour of activists on social media networks. The concept of 'moral politics' has first been pinned by Lakoff (1996), where he examined the sources of morality between two opposing political poles in the United States, the liberals and conservatives. Lakoff's work diverts from Thompson's examination and studies with the concept the underpinnings of morality that unconsciously determines the political motives and directions of political agents. Our work tends to look at the concept from the perspective first coined by Thompson in analyzing the sociopolitical norms underlying the mores of resistance while using Lakoff's definition of the concept in analyzing the moral and ideological foundations of cyberactivists. In this way we understand 'moral politics' as the shared sociopolitical norms that define activists on social media networks in terms of mobilization and resistance against state authority when those sociopolitical norms are violated. The moral and ideological foundations for understanding the relation between state, society and religion represents the fault line between the different virtual 'communities'. Activists on social media networks have a shared ideological understanding of the sociopolitical norms that define and govern their relationship to the state, on the one hand, and the society at large, on the other. Those shared sociopolitical norms separate cyberactivists into 'communities' of common interests and ideologies that are guarded, reinforced and shared beyond the 'boundaries' of the community.

The Birth of the 'Digital Generation': The Case of Egypt

Egypt witnessed the first dawn of the digital revolution with the introduction of computers in the late 1980s and the Internet in the early 1990s. By the time BITnet was introduced in Egypt by the end of 1993, the Internet user community at that time did not exceed some 2000 users and by 1994 the Internet started to be commercialized as a public service to the wider public and not only as an exclusive service for the educational sector.⁵ The Internet was introduced in Egypt before any other Arab country.⁶

The ICT sector has been growing massively in recent years in Egypt to slowly become one of the main pillars of the Egyptian economy. The sector's contribution to Egypt's GDP grew by 13% in 2014-15, reaching \$9bn (EGP65.9bn) and representing 4.1% of the country's total GDP.⁷ Today, there are more than 200 Internet and data service providers operating in the country making ADSL service in Egypt one of the cheapest among all African countries.⁸ Latest statistics report that Egypt's Internet penetration has reached 33%, namely a little over 30.8 million users, compared to 25.6% or close to 21.5 million users by the time of the Arabic version of Facebook in March 2009. In fact, unlike other sectors of the economy, the ICT sector has retained remarkable "resilience" in the face of political uncertainty and macro-

⁵ Kamel, Tarek 'Internet Commercialization in Egypt: A Country Model', *Information and Decision Support Center/Regional Information Technology and Software Engineering Center, Egypt,*

⁶ Abdulla, Rasha. 'Egypt's media in the Midst of Revolution'. *Carnegie Edowment for International Peace,* available at: <u>http://carnegieendowment.org/files/egypt_media_revolution.pdf.</u>

⁷ 'Egypt's ICT industry expected to drive economic growth.' *Oxford Business Group*, available at: <u>http://www.oxfordbusinessgroup.com/overview/turning-plans-reality-nation's-talent-and-technical-capacity-have-made-it-key-outsourcing-partner.</u>

 ⁸ OpenNet Initiative: Internet Filtering: Country Profile, available at: <u>https://opennet.net/research/profiles/egypt</u>.
 ⁹ 'Egypt Internet Users.' Internet Live Stats, available at: <u>http://www.internetlivestats.com/internet-users/egypt/</u>

economic instability that the country has been suffering from since 2011.¹⁰ In addition to its economic benefits, ICT has come to re-invent the way Egyptians communicate and interact with one another. From mobile phones to personal computer and laptops to the Internet, the average Egyptian today makes use of at least one of those devices in his/her daily life. The revolution in digital technology witnessed in Egypt since the 1990s has slowly come to particularly capture the younger generation in Egypt – the so-called 'digital generation' – as the first generation "to grow up in a world saturated with networks of information, digital devices, and the promise of perpetual connectivity."¹¹ At the same time, there is no doubt that in a country like Egypt suffering from high levels of poverty $(26.3\%)^{12}$ and illiteracy $(25\%)^{13}$ the Internet remains inaccessible to a considerable segment of the population.

Slowly, the 'digital generation' started to migrate 'online' as a means to escape the sociopolitical and economic frustrations and suppressions of the physical. In fact, the most alluring aspect of digital technology, especially within the Egyptian context, lies in its social aspect that it slowly encouraged for its usage as a political outlet, a tool for freedom of expression and opinion and a tool for calling for change, particularly in countries suffering from high levels of authoritarianism and control.¹⁴ Throughout the last decade, the Internet has reinvented and restructured itself to strengthen the human connection and social interaction thus becoming perhaps the most desired social outlet. The most intriguing elements for activism on the Internet have been blogging and social networks, particularly Facebook and Twitter, and more recently YouTube and Instagram.¹⁵ By 2005/6, the blogging culture in Egypt erupted in a way unprecedented in the Arab world, where it created a space for political awareness and discussion. Focusing on socio-political issues and going head-to-head against state and society, the blogging community started to attract a following that at times exceeded the circulation figures of major national newspapers. "Before 2005 there were only a handful of bloggers in Egypt and about 40 total blogs.³¹⁶ Facebook and Flikr soon gave the blogging community added tools for organizing and for openly expressing their opinion of societal. religious and political norms. Slowly the community of 'El-Face' (or so they came to be known in Arabic) started to develop their own cultural, political and social view of the world - practically a set of norms that separated them into virtual communities. Among the 'stars' of digital activism in Egypt, the digital world saw the rise of Kareem Amer, Aliaa Magda Elmahdy, Sherif Gaber and Albert Saber, among others, who were classified as secular activists and who were either harassed or arrested by the state for sharing material that defied societal or religious norms. On the other end, the Muslim Brotherhood has also used the momentum and built a noticeable presence in the digital world.¹⁷ Amer has been among the first bloggers to use the Internet for advocating for his reformist views on religion, society and

¹³ 'More than 25% of Egypt's population 'illiterate.' *Egyptian Streets*, available at: http://egyptianstreets.com/2014/09/09/more-than-25-of-egypts-population-illiterate/

¹⁰ 'Egypt's ICT industry expected to drive economic growth,' op. cit.

¹¹ Montgomery, Kathryn C. (Bennett, W. Lance ed.) 'Youth and Digital Democracy: Intersections of Practice, Policy, and the Marketplace', Civic Life Online: Learning How Digital Media Can Engage Youth, MIT Press, http://www.mitpressjournals.org/doi/pdf/10.1162/dmal.9780262524827.025, p.1.

¹² Mansour, Dina. 'The socio-economic of exclusion: Re-questioning citizenship in relation to social justice in the post Arab Spring Egypt.' Arab Citizenship Review No. 15, 2016, available at:

http://www2.warwick.ac.uk/fac/soc/pais/research/researchcentres/irs/euspring/publications/euspring_template pb eg final.pdf.

¹⁴ See Azer, Sherif. Cyberactivism in Egypt: a New Social Movement: A Pre-Revolution Insight. Saarbrücken: Lap Lambert Academic Publishing, 2012.

¹⁵ Anderson, Kimberly (2011), 'Revolution in the Digital Age: Egypt's Facebook Revolution and Internet Freedom', BA Thesis, The Faculty of the Communication Studies Department, California Polytechnic State University, San Luis Obispo, pp.2-3.

¹⁶ Radsch, Courtney C., 'Core to Commonplace: The evolution of Egypt's blogosphere,' Arab Media and Society (2008), available at: <u>http://www.arabmediasociety.com/?article=692</u>.

politics. His subsequent arrest and prosecution in 2007 in retaliation of his activism has been the first of its kind in Egypt making Amer the first blogger to face prosecution for his online writings. Amer was found guilty on charges of (promoting) atheism through blog posts of the likes of "There is no God except the Human Being"¹⁸, blasphemy and insulting Islam, harming the peace and insulting Mubarak¹⁹ and sentenced to four years in prison.²⁰ Both Saber²¹ and Gaber²² faced a similar fate and charges to Amer forcing Saber to leave the country and Gaber to go into hiding.²³

The first manifestations of the political usage of the Internet for activism and protest by the youth, came at the hands of the first generation of youth activists of the likes of Alaa Abdel Fattah, Manal Hassan, Ahmed Maher, Asmaa Mahfouz and Wael Abbas, who became known among the youth not only in Egypt, but throughout the Arab world, for raising political awareness and tapping against the taboo of criticising state authoritarianism. Among the first political movements to employ blogging and cyberactivism as part of its repertoire of contention has been the *Kifava* (Arabic for 'enough') movement or the Egyptian Movement for Change, which emerged as early as 2004 and grew out of earlier strands of protests following the Second Intifada in 2000 and the war in Iraq in 2003.²⁴ As *Kifaya* started to lose its momentum, the April 6 Youth Movement emerged in the Spring of 2008.²⁵ Established in support of the planned strike of industrial workers at the *Mahalla el-Kubra* industrial town on April 6, the movement gathered over 70,000 members on its Facebook group calling for solidarity with the workers, which soon turned it into a nationwide general strike. In many respects, the movement exemplifies the convergence the 'physical' with the 'virtual'.²⁶ The success of the cyberactivism behind the April 6 Movement was repeated with the Facebook page, 'We are all Khaled Said'. 'We are all Khaled Said' that was created to demand justice for the brutal killing Khaled Said, a 28-year-old Egyptian who by the police apparatus during a forcible arrest. The page, which was moderated by youth from the April 6 Youth Movement and Google executive Wael Ghoneim, was said to be the spark that turned Facebook into more than a social network, but rather a political tool for change. 'We are all Khaled Said' soon became a symbol for the Arab Spring and the reason for labelling it: the 'Facebook Revolution.²⁷

Methodology:

In distributing the survey on Egyptian secularists on Facebook and YouTube, we have employed a mixed approach of purposive and snowball sampling in reaching our pool of

²⁰ 'Egypt: 4-year Sentence for Blogger Upheld,' *NYTimes*, 2007, available at: http://www.nytimes.com/2007/03/13/world/africa/13briefs-egypt.html.

¹⁸ See Kareem Amer's Blog: http://www.kareem-amer.com/2006/09/blog-post.html.

¹⁹ Hendawi, Hamza, 'Egyptian court to issue verdict Feb. 22 for blogger accused of insulting Islam', *Taiwan News*, 2007, available at:

http://www.taiwannews.com.tw/etn/news_content.php?id=380526, 'Egyptian blogger jailed for insulting Islam', *The Guardian*, 2007, available at: https://www.theguardian.com/technology/2007/feb/22/egypt.blogging.

²¹ 'Egypt court jails blogger Alber Saber for blasphemy' *BBC News*, 2012, available at: http://www.bbc.com/news/world-middle-east-20695992.

²² Egyptian student given prison sentence for atheist Facebook posts,' *Daily News Egypt*, 2015, available at: http://www.dailynewsegypt.com/2015/02/17/egyptian-student-given-prison-sentence-for-atheist-facebook-posts/.

²³ To this day, Gaber is still active through his YouTube channel, with a substantial following, making prohuman rights videos that defy religious taboos and societal norms shared and protected by state and society. Some examples of Gaber's videos, which are also subtitled into English, are: 'Criticising religion is a human right', 'Does God Exist', and 'A Message to every Arab girl'.

²⁴ Radsch (2008), op. cit.

²⁵ http://carnegieendowment.org/files/egypt_media_revolution.pdf

²⁶ Ibid.

²⁷ Herrera, Linda, 'Egypt's Revolution 2.0: The Facebook Factor', *Jadaliyya*, 2011, available at: http://www.jadaliyya.com/pages/index/612/egypts-revolution-2.0 the-facebook-factor.

respondents to study their shared socio-political norms and reasons to 'migrate' online by: (1) purposively identifying public, closed as well as secret Facebook groups and pages advocating for secularism and sharing the survey among their members; and (2) identifying 'trusted' members within the secularist Egyptian virtual 'community' and asking them to share the survey within their networks.²⁸ We have further been aided by the administrators of 3 Facebook groups and by the same number of Egyptian cyberactivists who shared the survey on their own profiles as well as relevant groups to encourage more members from within their network to take and share the survey. In addition, the founder and host of the Egyptian secular online TV show, the 'Black Ducks', created a video to promote the survey among the followers of the show's YouTube Channel and Facebook page.²⁹ The 'Black Ducks Program', which currently has over 10,000 followers on both Facebook and YouTube, provides a venue for atheists not only from Egypt, but across the Arab region, to share their views and experiences of clashing with their families, society and the state. Moreover, 'virtual' participant observation is employed to add further insights to the results of the survey in question.

²⁸ Members of the selected Facebook groups and pages were reassured that their identity will remain anonymous for the purpose of this study.

²⁹ See the video on: <u>https://www.youtube.com/watch?v=ucusRJ0CzUs</u>.

Data and Interpretation: An Online Survey

In our survey, we asked a total of 41 questions, comprising 20 yes-no question, the same number of multiple-choice questions and 1 open question. However, most of the yes-no questions asked for a justification. The questionnaire was available both in English and Arabic, and accessible through SurveyGizmo. Most of these groups and pages are closed and require the administrator's approval to become a member and to engage with other members. Yet, one of the main challenges we faced in reaching out to respondents has been the fear of persecution by state authorities, which led to our survey being treated in some instances with scepticism. Although our identity has been revealed, the intent of the research explained and the sponsoring institution has been identified, in addition to having the consent of the group or page administrators to be part of their network (in case of non-public pages and groups), we still faced the problem of gaining the trust of sceptical members. Whereas some members and administrators actively supported our research, other members publicly questioned the scientific intend behind our questionnaire and publicly raised their suspicion that the gathered data might be used by intelligence agencies and poses a threat to the group's / page's security. This discouraged a significant number of potential respondents. Over the course of 8 weeks, we gathered 143 respondents to the Arabic version and 35 respondents to the English version

Table 1a: Summary statistics

	Age		Education		Proficiency	Mother
						Tongue
below 18	8	High School or below	31	Arabic	159	150
18-45	142	Educational	6	English	154	54

of the survey. Out of the 178 respondents, we excluded 3 whose answers indicated lack of interest in contributing to this study. In addition, because we allowed respondents to leave out questions, as they wished, 11 respondents partially completed the survey and a handful of respondents left some questions unanswered. Although our sample therefore includes only 164 respondents for most questions, the results paint at least an indication of the average online / cyber activist. Tables 1a and 1b provide a general overview of the respondents, as well as their ethnic background and current residence, as well as their connection to Egypt.

		Institute				
45-60	1	Bachelors	77	French	41	4
above 60	4	Masters	32	German	21	4
	<u> </u>	PhD	14	Italian	3	0
		Other	4	Spanish	4	0
		no comment	11	other	16	5
				 Foreign	157	-
				Language yes		
				Foreign	18	-
				 Language no		

We observe that the majority of respondents are middle-aged and illustrate a high average degree of education and language proficiency, whereas most respondents consider Arabic to be their mother tongue. The age group of the respondents confirm the contention that the youth (roughly between 18-45) play an important role in cyberactivism and constitute the largest majority members of the virtual community.

	Egyptian National	Residing in Egypt	Leaving near future	Planning to Return
Yes	137	93	58	21
No	28	72	35	57

Table 2b: Ethnicity and Relations to Egypt

Of the respondents, 18 left after the Arab Spring, 17 left long before the Arab Spring, 17 were born abroad, 11 lived most of their life abroad, but only 5 left during the Arab Spring. Comments on the reasons behind leaving or intending to leave the country suggest that restrictions on basic freedoms and rights as well as the inability to conform to the 'mentality' of the majority is a main motivation for migration. Roughly three quarter consider themselves either as atheists (56 respondents) or political secularists (71 respondents), whereas only approximately one over eight consider themselves as "liberal, yet religious" (16 respondents) or "religious supporting a strong relationship between state and religion" (3 respondents). These results further illustrate that the survey reached members beyond the secularist community, but with their numbers being too low, they do not affect the outcome of our statistical analysis.

a. Social Networks as Means for Activism:

Most respondents consider social media networks important or very important (totalling 135 versus 28 not important), whereas 70 respondents claim not to be very active or use social media in only rare occasions, 83 consider themselves as very or extremely active, while 11 consider themselves moderately active. A majority use social networks to obtain news about Egypt and the world (58%) and to join debates (66%), whereas roughly 42% use the networks to obtain news from peers (31%) or chat with them (31%) and 20% to fill their free time. Correspondingly, 143 respondents follow news using mainly online news (125 respondents),

and to a lesser degree social media (83 respondents) and print media (45 respondents) whereby the news are mostly frequently read in Arabic or English.³⁰

Although our study was exclusively diffused in secularist networks, we ask participants to state whether they use social networks for activism. Approximately one fourth did not support this claim. Consequently, we identify those who do not actively engage in activism as passive followers who either are sympathisers or are engaging with the community. We observed that differences between both groups are insignificant, except for minor deviations which are discussed in the following. Table 3 combines the data on how social networks are used: It provides an indication of the average online activist versus followers among the respondents. Most respondents use social networks for activism both before and after the Arab Spring and consider it to be a safer means for mobilisation and instigating chance.

Table 3 Use of Social Networks, separated according to whether or not being an activist

No 45 17 17 9 20 6 20 4 15 12 8 7 Yes 28 28 34 25 34 25 20 10 13 0 12 No 37 29 2 29 9 22 50 27 47 36 11 Yes 120 83 91 117 91 109 97 45 70 50 5 11 Note on question numbers: Used /consider social networks for / as: 1 1 109 97 45 70 50 5 11 Note on question numbers: Used /consider social networks for / as: 1 Activism. 3 Before the Arab Spring. 4 A potentially good venue for activism. 4 A safer space for mobilisation. 5 A safer space for mobilisation. 4 5 5 4 5 4 5 4 4 4 4 4 4 4 4 </th <th>Question</th> <th>1.</th> <th>2.</th> <th>3.</th> <th>4.</th> <th>5.</th> <th>6.</th> <th>7.</th> <th>8.</th> <th>9.</th> <th>10.</th> <th>11.</th> <th>12.</th>	Question	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
No 37 29 2 29 9 22 50 27 47 36 11 Yes 120 83 91 117 91 109 97 45 70 50 5 11 Note on question numbers: Used /consider social networks for / as: 1. Activism. 2. During the Arab Spring. 3. Before the Arab Spring. 3. Before the Arab Spring. 4. A potentially good venue for activism. 5. A safer space for mobilisation. 5. A safer space for mobilisation.	No	45	17	17	9	20	6	20	4	15	12	8	7
Yes12083911179110997457050511Note on question numbers: Used /consider social networks for / as:1.Activism.2.During the Arab Spring.3.Before the Arab Spring.4.A potentially good venue for activism.5.A safer space for mobilisation.	Yes		28	28	34	25	34	25	20	10	13	0	12
 Note on question numbers: Used /consider social networks for / as: 1. Activism. 2. During the Arab Spring. 3. Before the Arab Spring. 4. A potentially good venue for activism. 5. A safer space for mobilisation. 	No		37	29	2	29	9	22	50	27	47	36	11
 Activism. During the Arab Spring. Before the Arab Spring. A potentially good venue for activism. A safer space for mobilisation. 	Yes	120	83	91	117	91	109	97	45	70	50	5	11
7. Part of an online community that shares my ideology	 Activisr During to 2. During to 3. Before to 4. A poten 5. A safer	n. the Aral the Aral tially go space fo ctivism	b Sprin o Sprin ood ve or mot is an in	ng. nue foi pilisatic mporta	r activi on. nt mea	ism. 	instig	ating	chang				
9. Part of more than one online community10. Supported by online community11. Financially or legally supported	12. Know fi	2	0 2			group	os.						

The trends show that there is little difference between activists and followers in terms of when they started resorting to social networks and with regards to the personal evaluation of the role of cyberactivism. The same holds for the fact that both categories of respondents view social networks as a safe and potentially effective platform for activism and for instigating change. On the other hand, in relative terms fewer followers feel that they are part of an online community which shares their ideology. They are also more likely to restrict interaction with this community to online engagements only, whereas the large majority of activists also engages with their community offline. Question 9 indicates that most respondents are active in more than one online community, with activists being more likely to engage with other online communities than followers. However, our network analysis will illustrate that this

³⁰ We decided to provide absolute numbers instead of relative shares, but use percentages whenever a question allowed a respondent to provide more than one answer.

does not necessarily hold for open groups, as will be elaborated below. Few claim to be supported by their virtual community, and even less claim that they are financially or legally supported.³¹ Responses show that a majority of the respondents are active on Facebook (82%) and YouTube (60%), while a fewer number claims to be using Twitter (29%), Instagram (12%) or other venues (8%). When asked how close respondents feel to their online friends and community, 50, constituting almost half of the 120 respondents to this question, stated that their online community are closer to them in terms of cultural/ideological beliefs and lifestyle than their offline ones. 43 claim that they feel close to both their online and offline community, whereas only 15 stated that their online and offline communities are identical and 12 declare that they have no online, but only offline friends. Comments by respondents hint to differences between those living in Egypt and those living abroad. Those living in Egypt explained that they feel they do not belong to their offline community, especially a community where they cannot openly confess their religious views and opinions. One respondent pointed out that the society in general does not accept "otherness", which doesn't make him/her feel that they belong. Another pointed to a generational gap in the Egyptian society isolating the youth. As ironically put by one respondent, "I belong to a society that for the moment does not belong to me." Respondents living abroad, on the other hand, pointed out that though some face the common problems of integration as migrants, they still largely feel they have a sense of belonging in their host country than in Egypt.

b. The Moral Politics of Cyberactivists:

The survey included questions aimed to understand the ideological foundations and norms underlying the moral politics of this selected community. These questions focused on their opinion and understanding of the role of religion in relation to the state and within society. Table 4 illustrates the respondents' opinion of human rights, women's rights and specifically their evaluation of the human rights movement in Egypt. As can be observed below, the vast majority of the respondents claimed to unconditionally support these movements, while only a few diverted from these perceived norms on human rights and secularism in Egypt.

1 4010 1			
Opinion on	Human rights	Women's	Human rights movement
		rights	in Egypt
A "Western" invention	6	6	4
Support unconditionally	152	152	156
Should be constrained by	6	6	4
Islamic Sharia			

Table 4

Egypt prescribes the statement of religion on the ID of every citizen. As a consequence, not only is each citizen identified and categorised by peers, an individual is labelled without the option of prior or posterior choice. Similarly, citizens are only allowed to marry and thus found a family within the boundaries defined by their religious affiliation. Secularists in Egypt fight to free citizens from the state-imposed constrains of religion, especially those prescribed under the existing family status law. We, therefore, asked participants for their opinion on religious conversion, civil (religiously unsanctioned) marriage and the obligation to state one's religion on the ID. Virtual participant observation suggests that members on

³¹ At the same time, it is to be noted that this question rendered low responses.

social media networks advocating for secularism in Egypt are classified as either: secularist atheists, secularist liberals, and secularist religious.

1000 5	r							
Oninian of	What is your opinion of civil marriage?							
Opinion of religion on	marriage should not	should be made available, but not						
ID	be bound by	abolish religious	Western					
	religion	marriages	practice	Total				
Don't see why it should be problematic	1	10	4	15				
I take pride in declaring my religion	0	3	1	4				
It is an infringement of my freedom of religion and privacy	81	61	3	145				
Total	82	74	8	164				

Table 5

- 11

Table 5 illustrates that the opinion of whether religious affiliation should be written on one's ID is not necessarily correlated with the opinion on civil marriage. Only half of the respondents categorically renounce religious marriages, whereas the vast majority considers the statement of religious affiliation an infringement to personal privacy and religious freedom. On the other hand, those few who take pride in their religion being stated on their ID, support religious marriages, but do not necessarily see it as a Western practice. Correspondingly, table 6 cross-tabulates the religious ID with the opinion on religious affiliation as an infringement, but at the same time would not allow conversion for reasons of damaging the family. On the other hand, out of the few who take pride, half approve religious conversion without restriction.³²

Table 6							
Opinion of	What do you think of religious conversions?						
religion on ID	Damaging to family	Islam is the religion of state	Should be allowed without restriction	Total			
Don't see why it should be problematic	2	1	12	15			
I take pride.	1	1	2	4			
Infringement on my freedom of religion and privacy	7	0	138	145			
Total	10	2	152	164			

Furthermore, a majority of those who consider religious conversion as damaging to the family do not oppose civil marriage, and roughly half of those who support unrestricted religious

³² Under the constraint that the number of respondents who take pride is too small to infer any statistical meaningful conclusion.

conversion support religious marriages. The support of religious marriage might indicate a latent religiosity or conservatism among activists and thus raises the question of whether respondents support religious liberties only within the context of the 3 Abrahamic religions (Judaism, Christianity, Islam) or also beyond. We therefore inquired whether respondents would support the free establishment of places of worship for any religion in Egypt. Yet, with the exception of those who consider Islam the official state religion, a majority of the respondents, consider it to be an essential element of religious freedom. 129 illustrated unconditional support, whereas 13 respondents limited their support to the Abrahamic religions, and 7 respondents believe that a liberalisation would disturb peace in Egypt.

	What do you th	ink of religious co	onversions?	
What is your opinion of civil marriage?	Damaging to family	Islam is the religion of state	Should be allowed without restriction	Total
not be bound by religion	4	0	78	82
should be made available	3	1	70	74
Western practice	3	1	4	8
Total	10	2	152	164

Table 7

c. Understanding the Motives for Virtual 'Migration':

A principal question for our analysis is whether cyberactivists use social networks to escape the socio-political restrictions they are facing in order to live a different life online rather than offline ("religious offline and atheist online"). Comments by respondents on the common interests of members of the virtual community suggest the following to be their shared interests: secularism, freedom from the restrictions of religion, democratic freedom, revolution and resistance, liberal principles and secularism in Egypt and the Arab world, atheism, minority rights and human rights in general. Others pointed out different interests, such as debating societal problems, e.g., sexual harassment and women's rights, as well as other topics covering cinema, arts, music, and poetry.

In order to analyse the process of virtual 'migration' and the reasons behind secularists resorting to the virtual rather than physical community, we constructed a variable based on the respondents' answers to (1) whether they believe they belong to an online community that shares their same ideology, beliefs and/or opinion; and (2) whether they feel to belong to their (offline) community. Whenever a respondent answered the first question with "Yes" and the second with "No", we took this as an indication of having migrated online and assigned a value of 1. If a respondent confirmed the latter question, we interpreted this as not needing to migrate online, and assigned a value of 0. The remaining19 respondents negated both questions. Since it is unclear whether or not a person is seeking to migrate online in this case, we did not consider these respondents. The regression generally suffers from the fact that the sample size is relatively small and most variables tend to be statistically insignificant although we would have expected them to be correlated with our dependent variable. The results of the probit regression with 'migrating online' as a dependent variable, can be seen in Table 8.

Table 8: Marginal Impact on the Likelihood of Migrating Online - Probit Regression

	Model 1	Model 2	Model 3	Model 4
sourcechatfriends	-0.3643 *** (0.1213)		-0.2501 * (0.1365)	-0.3185 ** (0.1345)
germanproficient	0.3379 (0.1371)			0.2885 (0.1842)
mothertongueenglish	0.3781 *** (0.1054)	0.3178 ** (0.1199)	0.3604 ** (0.1187)	0.3588 ** (0.1294)
socialmediabeforeAS	0.2568 * (0.1351)			0.2073 (0.1625)
onlineengagementsonly	0.3455 *** (0.1070)	0.2229 * (0.1145)	0.2791 ** (0.1181)	0.3073 ** (0.1202)
opinioncivilmarriage 1	0.4605 (0.3353)	0.6889 ** (0.2187)	0.7196 * (0.2516)	0.7559 * (0.2427)
opinioncivilmarriage 2	0.5285 (0.3112)	0.7789 *** (0.1724)	0.7850 ** (0.2079)	0.8087 ** (0.1988)
printedarabic		-0.6684 *** (0.0930)	-0.6650 *** (0.0991)	-0.6671 *** (0.1055)
printedenglish		0.3822 ** (0.1301)	0.3910 * (0.1374)	0.4152 ** (0.1298)
sourceonopinion		-0.4168 *** (0.1011)	-0.3837 ** (0.1181)	-0.3970 *** (0.1104)
Ν	88	92	87	86
Pseudo R ²	0.2310	0.2770	0.3028	0.3258
AIC	108.0883	106.6648	100.7268	100.8370
BIC	127.9070	126.8391	122.9199	127.8349

(Coefficients show marginal effects)

Marginal effects; robust standard errors in parentheses, * p<0.10,** p<0.05,*** p<0.01The independent dummy variables are interpreted as follows:

- sourcechatfriends: Social media networks are used as a venue to chat with friends, family and peers
- germanproficient: The respondent is proficient in German
- mothertongueenglish: The respondent's mother tongue is English.
- socialmediabeforeAS: Social media have been used before the Arab Spring revolts.
- onlineengagementsonly: The respondent limits his meetings with members of an online community to online engagements only.
- opinioncivilmarriage:
 - o Baseline: Western practice
 - \circ 1: should be made available, but not abolish religious marriages, opinioncivilmarriage
 - 2: marriage should not be bound by religion
- printedarabic: News are derived from printed sources in Arabic
- printedenglish: News are derived from printed sources in English
- sourceonopinion: Social networks are considered as a source of information on the opinion of friends and a venue to engage in free debates

The best fit seems to be offered by model 3. We observe that all but three variables are positively correlated with the decision to migrate online. The negative sign of sourcechatfriends and the positive sign of onlineengagementsonly illustrate that migrants

strictly separate between their family and offline peers on the one hand, and online acquaintances and activists, on the other. Similarly, deriving news from Arabic sources strongly affects respondents as they feel less inclined or in need to migrate. However, we can expect a mutual causation between reading Arabic news and the need to migrate and thus, a reinforcing effect for both variables. On the contrary, printedenglish and mothertongueenglish are positively correlated since both variables show an openness towards the Western world, as well as the impact of Western education and social class or the fact of being born abroad on the degree to which respondents identify themselves with the moral politics of secularists for upholding human rights principles and imposing a strict separation between state and religion.³³ Similarly, opinioncivilmarriage is correlated with a respondent's degree of conservatism, and thus, his level of compliance with the prevailing norms in Egypt. This indicates the plausible result that the more a respondent supports civil marriage and the less he accepts the impact of religion, the more likely he is to migrate. The timing of entering social media plays only a statistically significant role in the first model (and only at p<0.1). Also, other variables indicating a use during or after the Arab Spring turn out to be insignificant (not illustrated here). This can be explained by either the small sample size or young age of most of our respondents, but might also indicate that the Arab Spring did not trigger or intensify an online migration movement. The sign of the last variable, sourceonopinion, is puzzling. The small sample size might be a cause for the negative sign. In addition, those who migrated feel increasingly scrutinized by the government and at risk of being imprisoned, whereas those who conform do not fear persecution when engaging online. This is supported by comments shared by respondents. While respondents have confirmed that social media networks provide them with vital means to debate and dialogue with each other freely, as well as with the tools to mobilize and 'spread the word', a large number stressed on their fear of state surveillance and persecution in the post-Arab Spring. Respondents have openly voiced their fear that social media networks are slowly becoming unsafe. One respondent suggested that opting for "fake accounts" has become "essential, though", especially when wanting to openly discuss "atheism". On the other hand, respondents hinted to the existential dilemma they suffer from when defying society that one respondent summed up in one sentence: "I'm [an] atheist online, religious offline."

d. Social Media Networks: A Network Analysis:

In order to properly understand how cyberactivism takes place, we decided not to exclusively focus on the micro level but extended our analysis to the social networks in which we disseminated our survey in order to get an understanding of how connected those social networks are. We used Netvizz, Gephi and Mathematica to study the structure of these networks. A complication arises as Facebook's policies do not allow to access 'closed' and 'secret' groups and pages and an analysis of beyond the last 999 posts per page / group. Thus, we limited our study to 30 Facebook pages and 5 Facebook groups,³⁴ and the post entered during the past few weeks or months depending on the frequency of interaction between members. Although these only constitute as small subsample of the activist networks on Facebook in which we distributed our sample, our analysis includes a total of 2506 group users and 185500 page users. Results obtained in open pages seem to be consistent with closed pages

³³ This impact of education is also supported by our previous study, *see* Mansour, Ille & Madkour (2014).

³⁴ To protect the identity of members within those groups and pages, we decided to refrain from naming the pages and groups analysed.

Figure 1 provides a graphical representation of the page structure and table 9 in the appendix illustrates the corresponding statistics. In the network, members are represented by small nodes. We will use node and member interchangeably in our analysis. A line or link connects a page member to another, whenever the former responded to or likes a post of the latter.³⁵ After we combined all page networks into a large network, we use Gephi and Mathematica to identify modules or clusters consisting of densely connected nodes. Clusters mainly correspond to the individual pages, but tightly connected pages appear in the same colour shade, whereas pages can also be split into multiple clusters. We define 19 different clusters of size 10 or above and assign to each a distinct colour shade. In addition, the algorithm pushes nodes from the centre of the network to the outer borders whereby nodes gravitate around nodes with which links have been formed. In this way, we observe a dense collection of nodes whenever a strong interconnection exists between these nodes, and a sparse distribution whenever nodes are only weakly connected.

Each node bears the colour of its cluster. Thus, a link between two nodes of the same colour correspondents to an exchange of opinions between individuals who can be clearly attributed to the same group. It then carries the same colour as the nodes it connects. A link between nodes of different colour implies either that a member of one page responded to a post of another page, or one of the nodes defines a member who is a member of two or more pages. It then takes on an interpolated colour of the two nodes' colours. Figure 1 shows that most open pages are strongly interconnected. The orange and blue pages are more self-interactive then the green or pink page, both form strong ties with other pages, especially with the green and light pink page. The darker violet page at the bottom of the graph is strongly connected to the black page.

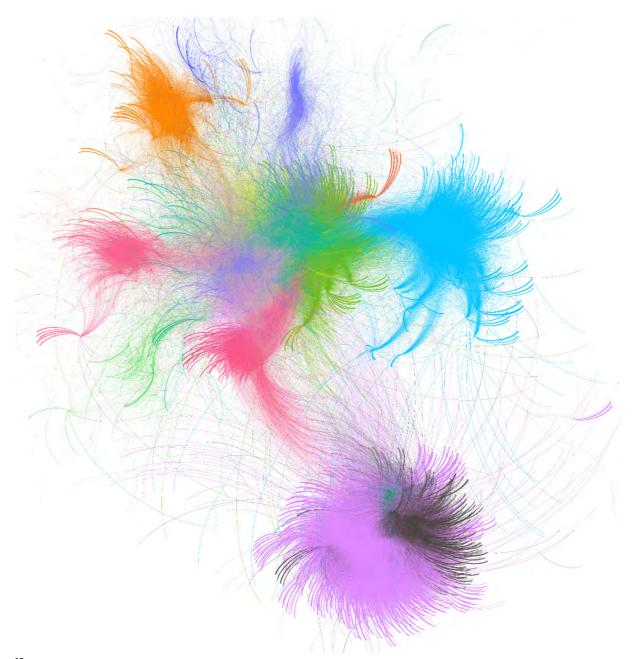
³⁵ We study here directed graphs, i.e. the direction of the link between two nodes plays a role. The reason to study pages and groups is that a member who posts an initial comment does not actively engage with another member. Only the member who reacts to the post forms a connection. However, the statistic are very similar if pages and groups are treated as undirected networks. The average path length and network diameter are calculated on the basis of an undirected network, since we wanted to see how likely it is to trace an activist by looking at other members.

The number of links which an individual member forms defines his degree. A degree of 5, for examples, corresponds to an individual who responded to posts of 5 different other members. Table 9 shows the average values for each page illustrating that members interact with relatively few other individuals (with an average of 8.113 over all pages). Correspondingly, the graph density (i.e., the ratio between the number of links over the number of possible links) is close to zero. The average path length of an individual node defines the average over the shortest path to any other node in the network.³⁶ Table 9 illustrates that pages are smallworld networks which commonly occur in social networks. Although only relatively few members are connected, any page member can be reached from any other members of the same page through only a small number of connection or links formed by other members of this page. The modularity provides a measure for the degree of division within a network, i.e.

³⁶ The minimum path length between two unconnected nodes equals 0. The longest 'shortest path' between any two members of a page network define its diameter and the average of the 'average path length' over all page members define the page's average path length.

nodes of the same network form clusters of more densely connected nodes. A high value defines a network in which nodes are strongly connected to other nodes of the same cluster, but only rarely connected to nodes of another cluster. In the given context, modularity therefore provides a measure that allows us to see if close-knit communities form within a page, i.e. where members respond to posts of a specific individual but rarely to posts of others. Since the score can fall between -0.5 and 1.0, we observe that pages tend to have a relatively high degree of modularity. Closely-knit friendship networks tend to form within pages. This is supported by the relatively high number of weakly connected components of most pages.³⁷ 12 pages illustrate over one hundred weakly connected components, while 9 have less than 10 sub-graphs, including 3 pages which are not subdivided, while the number of weakly connected components is uncorrelated with the number of members a page has. To

Figure 1: Directed Graph of all analysed pages except for pages 3 and 24



³⁷ A weakly connected component defines a sub-network (or sub-graph) in which each node is connected to any other node while not taking account of the direction of the links.

sum up, we observe that page members interact with members of the same page but also with other pages while most restrict interaction to a relatively small close-knit community.

Groups can be studied in two ways: The first option is to study in which way members interact independent of the posted topic. The analysis is identical to the analysis of pages in this case. The second option is to treat a topic as a node in the group network. In this case, links are formed between a group member and the post whenever he / she likes or comments on this post. Figure 2 illustrates the network formed by the 5 open groups if we restrict our

Figure 2: Graph of all analysed groups - only member interaction

analysis to membership interaction only. The graphical interpretation is then analogous to the study of Figure 1. We immediately observe that public groups tend to be unconnected. The software defines 8 independent cluster, more than the number of groups. Figure 2 shows that not only are public groups sparsely connected, but groups also tend to split up into subgroups. Table 10 provides the statistics for the 5 public groups for both cases. We observe that the general results hold independent of whether we define topics as individual nodes, as well as that public groups are structured similarly to public pages. Groups form small-world networks

with a low average degree but also a short average path length, in which members tend to interact repeatedly in small close-knit sub-communities but rarely with members outside of these sub-communities. The principal difference between public groups and public pages is that members of the latter tend to engage in other groups whereas members of the former stay within their page community. The small-world characteristic of pages and groups also explains the secrecy of community members and their choice to refrain from responding to our survey. Not only are they potentially exposing themselves, but also a large number of other community members. Identifying a small subset of community members would thus allow third parties including state actors to reconstruct most of the social network.

Treating topics as nodes enables us to identify the most important and central points of discussion. Because of the limitation to study only 999 posts, the importance and pool of topics depends on the data at which we downloaded the network data. For the period before the July 16, 2016, we identified the following topics as being hotly debated:

Conclusion

This paper has provided a first look into the structure, motivation and socio-political perspective and norms of secular cyberactivists with a focus on Egypt and an analysis of the moral politics evolving within the social online networks of these groups. Our survey illustrated that with minor exceptions, members in these networks are homogeneous sharing one socio-political ideology and a set of norms separating them from other communities, especially with respect to social and religious liberties beyond the constraints of religions. Yet, with regards to some topics the community seems split when it comes to questions of whether religious institutions (e.g. civil marriage) should become an option. This illustrates that the group of secularists includes a larger scope of perspectives, ranging from antireligious to completely liberal, leading to what can be called secularist atheists, secularist liberals, and secularist religious liberties and a disengagement from religious institutions while illustrating resistance against state authority and the suppression of the majority in society.

In addition, a network analysis of secular activist Facebook groups and pages revealed that online communities of secular cyberactivists exhibit small-world characteristics typical of social networks. Members tend to repeatedly interact only with a small number of other community members, thereby forming small close-knit sub-communities. Yet, interaction with members outside of these sub-communities is rare. Nevertheless, these sub-communities interact to such a degree that all members are indirectly connected via few other members. In addition, we observed that individuals are not exclusive members to a single community, but interaction among communities occurs at least in the case of Facebook pages. Our paper further demonstrated an existential dilemma between the virtual and the physical and a moral politics that defined them as a community struggling for acceptance and integration in society.

Appendix

Table 9

Page 1 ID	Nodes	Links	Average	Network	C1	Mad.	XX7 1 - 1	
ID			\mathcal{O}		Graph	Modu-	Weakly	Average
			Degree	Diameter	Density	larity	Connected	Path Length
				(undirected)			Components	(undirected)
1 2	22374	63814	5.704	8	0	0.451	108	3.871
2 2	2069	1743	1.685	17	0	0.795	527	6.352
3 8	88877	342356	7.704	n/a	0	0.348	108	14.14
4	1488	1905	2.56	14	0.001	0.641	365	5.045
5 4	44	42	1.909	4	0.022	0.34	4	2.43
6 1	1215	737	1.213	14	0	0.796	635	5.997
7	1225	1062	1.734	11	0.001	0.668	482	4.47
8 1	191	246	2.534	8	0.0007	0.648	8	3.95
9 1	1477	2664	3.607	10	0.001	0.535	282	4.238
10 2	28929	161611	11.173	8	0	0.279	171	3.849
11 6	602	159	0.528	12	0	0.875	449	4.885
12 9	972	1155	2.377	11	0.001	0.575	301	4.098
13 4	4910	30786	12.54	7	0.001	0.325	37	3.651
14 8	8932	47885	10.722	6	0.001	0.388	2	3.68
15	1416	3382	4.777	10	0.002	0.508	14	4
16 2	278	215	1.547	12	0.003	0.795	92	5.242
17 4	4626	18712	8.09	8	0.001	0.485	7	3.972
18 6	6975	26052	7.47	10	0.001	0.484	19	3.98
19	1050	1004	1.912	15	0.001	0.746	316	5.734
20 5	501	912	3.641	8	0.004	0.544	20	3.681
21	13	11	1.692	4	0.071	0.293	4	2.267
22 4	4141	11542	5.574	7	0.001	0.431	1	3.772
23 3	36	43	2.389	6	0.034	0.531	1	3.278
24 8	88255	509568	11.548	n/a	0	0.306	2	13.983
25 5	54	48	1.778	7	0.017	0.595	12	3.13
26	1364	4009	5.878	9	0.002	0.401	65	3.598
27 1	1403	3174	4.525	11	0.002	0.496	70	4.148
29 9	9365	26977	5.761	4	0	0.367	1	3.53
30 3	338	277	1.639	9	0.002	0.699	133	4.37

Group ID	Nodes	Links	Average Degree	Network Diameter (undirected)	Graph Density	Modu- larity	Weakly Connected Components	Average Path Length (undirected)
Groups	: Only m	ember in	teraction				L	
1	965	1212	2.547	4	0.001	0.288	1	2.489
2	123	158	3.593	6	0.015	0.258	29	2.836
3	126	173	3.238	7	0.013	0.317	15	2.938
4	539	1966	8.879	5	0.008	0.22	6	2.925
5	759	1256	3.697	5	0.002	0.374	2	2.939
Groups			st interacti	1				
1	1964	6985	7.113	8	0.002	0.458	41	3.857
2	1084	598	1.103	12	0.001	0.624	655	3.89
3	499	512	2.052	9	0.002	0.634	185	4.095
4	749	3037	8.109	8	0.005	0.33	11	3.36
5	935	2326	4.975	7	0.003	0.442	10	3.36